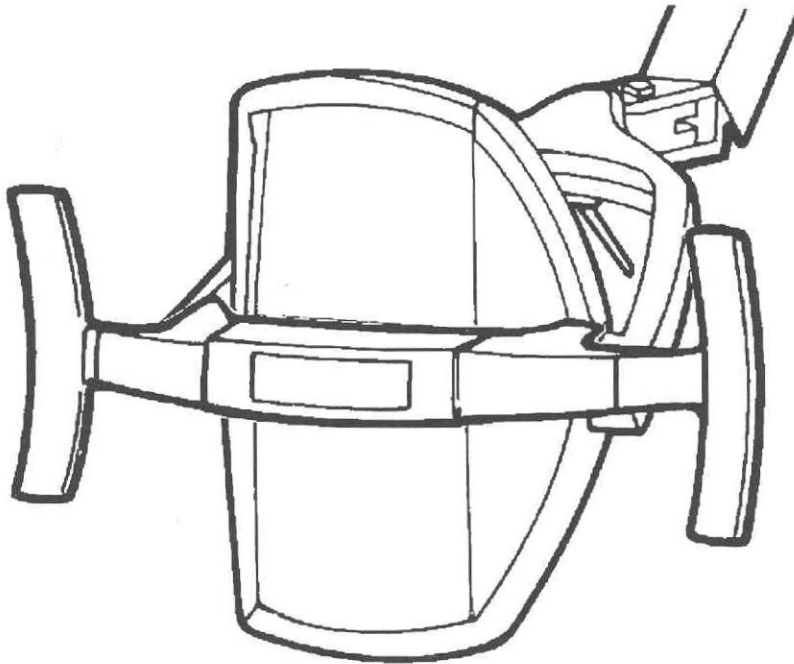


# Light Fantastic II

## Installation Instructions

D



# Safety Warnings

## CAUTION

Caution messages appear before procedures which, if not observed, could result in damage to equipment.

## WARNING

Warning messages alert you to a specific procedure or practice which, if not followed correctly, could cause personal injury or damage to equipment.

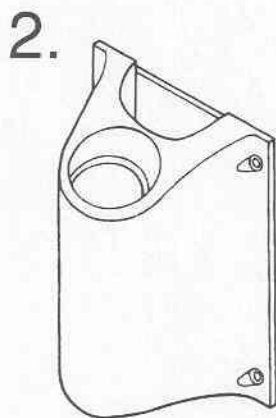
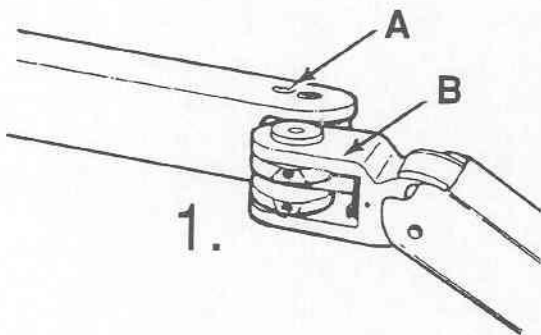
## DANGER

Danger messages alert you to a specific procedure or practice which, if not followed correctly, could cause serious personal injury.

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## List of Contents

LFII (Unit Mount) Installation .....	2
LFTII (Track Light) Installation .....	4
LFTII-D (Dual Track) Installation .....	10
LFCII (Column Light) Installation .....	11
LFCII-D (Dual Column Light) Installation .....	15
LFWII (Wall Light) Installation .....	16
LFLII (Laboratory Light) Installation .....	17
LFII Autoclavable Handles (All Models) .....	18
Adjustments .....	19



## ⚠ CAUTION

All wiring must be performed by a licensed electrician. Because of varying city electrical codes, the dealer should ensure that installation will meet local requirements. Pelton & Crane cannot be responsible for an installation which does not meet local electrical codes.

The Light Fantastic II is available in a variety of models. Identify the particular model for your installation application and install the following instruction for the specific unit as outlined.

**NOTE:** For maximum operating versatility of the LFII, install rear arm 60" (152.4 cm) from the floor.

## LFII (UNIT MOUNT) INSTALLATION

Holding LFII in position over mounting column, route LFII power supply cord through column. Insert male electrical plug in grounded receptacle on unit (1.6 amp, 120 VAC, 60 Hz). Protect circuit with a 15 amp fuse or circuit breaker.

Apply light application of petrolatum or oil to outer surface of bushing before inserting into the mounting column. Insert rear arm bushing in column.

## ⚠ CAUTION

Failure to apply lubricant may cause bushing to bind in tube and unscrew itself from rear arm of light.

Ensure column is plumb to prevent light from drifting.

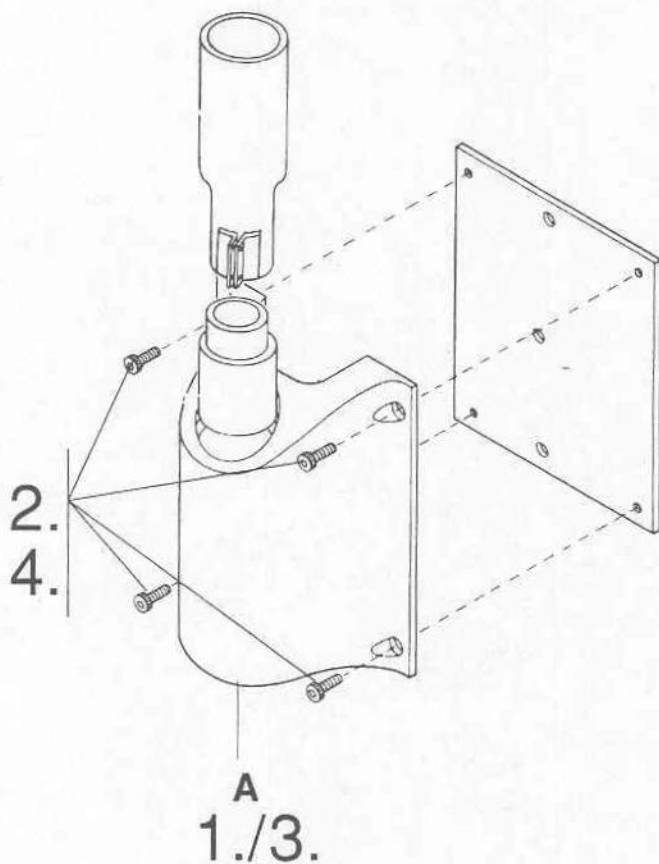
### Universal Arm Adaptation (For Right or Left-Handed Operation)

1. The LFII includes a universal arm adapter which may be right or left-hand positioned. All lights shipped from the factory are positioned for right-handed operation. Should the doctor need a left-handed light, remove the screw **A** adjacent to the rear arm/arm adapter joint **B**. Rotate arm adapter until other arm adapter hole aligns with rear arm hole. Reinsert and tighten screw.

### Optional Wall Mounting Bracket For Unit Light

2. An optional wall mounting bracket (006719) or wall mounting bracket and plate assembly (011203) are available (when required) to mount unit light to wall.

**NOTE:** Wall mounting bracket (006719) is not recommended for dry wall installation. Order 011203 for dry wall installation.



Install wall mounting bracket (006719) as follows

1. Position bottom edge of bracket A 54" (137.2 cm) from floor. (Height may vary for individual requirements.)

Position wall mounting bracket with bottom center located within 30" (76.2 cm) of an electrical outlet (1.6 amp, 120 VAC, 60 Hz). As an alternative, the wall mounting bracket has a recess for mounting directly over a duplex outlet if located 54" (137.2 cm) above the finished floor surface.

2. Secure wall mounting bracket to wall with screws entering **solid wood** at least 2" (5.1 cm). Framing behind wall must be secure.

Route power supply cord from light through wall mounting bracket hole and plug into electrical outlet.

Apply light application of petrolatum or oil to outer surface of bushing before inserting into the wall mounting bracket. Insert rear arm bushing in wall mounting bracket.

Ensure wall mounting bracket is plumb to prevent light from drifting.

Install wall mounting bracket and plate assembly (011203) as follows

3. Position bottom edge of plate 56" (142.2 cm) from floor. (Height may vary for individual requirements.)

Secure plate to vertical stud in wall (near wall receptacle) with three #24 x 2-1/2" long minimum wood screws.

4. Fasten wall mounting bracket to plate with four 1/4"-20 screws.

Apply light application of petrolatum or oil to outer surface of bushing before inserting into the wall mounting bracket. Insert rear arm bushing in wall mounting bracket.

Ensure wall mounting bracket and plate assembly is plumb to prevent light from drifting.



## LFTII (TRACK LIGHT) INSTALLATION

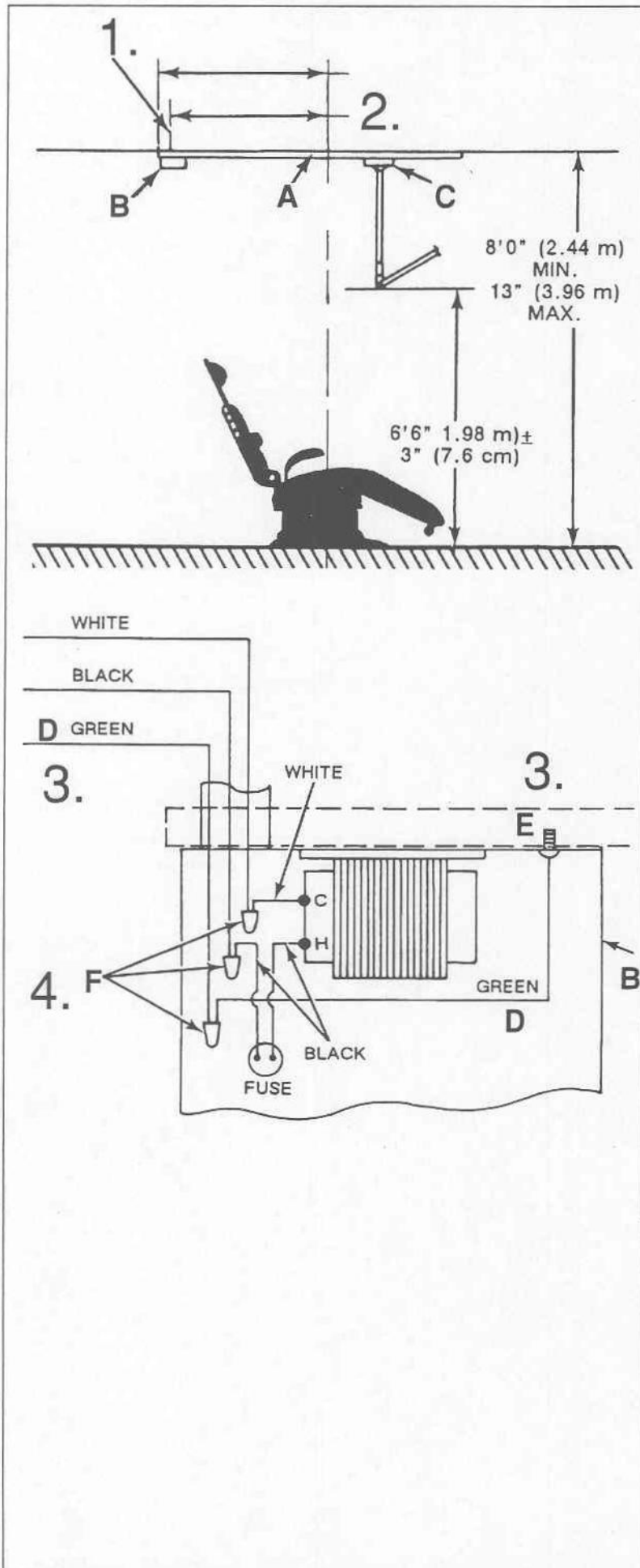
### Pre-Installation of Electrical Wiring – LFTII

1. Stub out a 2.0 amp, 120 VAC, 60 Hz electrical supply for the LFTII or a 4.0 amp, 120 VAC, 60 Hz line for the LFTII-D. See position of transformer box **A**. Protect circuit with a 15 amp fuse or circuit breaker.
2. Stub out wiring 39-5/8" (100.6 cm) from the chair center line along the longitudinal axis of the LFTII track **B** and trolley **C** assembly.

**NOTE:** For electrical supply connection, use wiring suitable for at least 90°C (194°F).

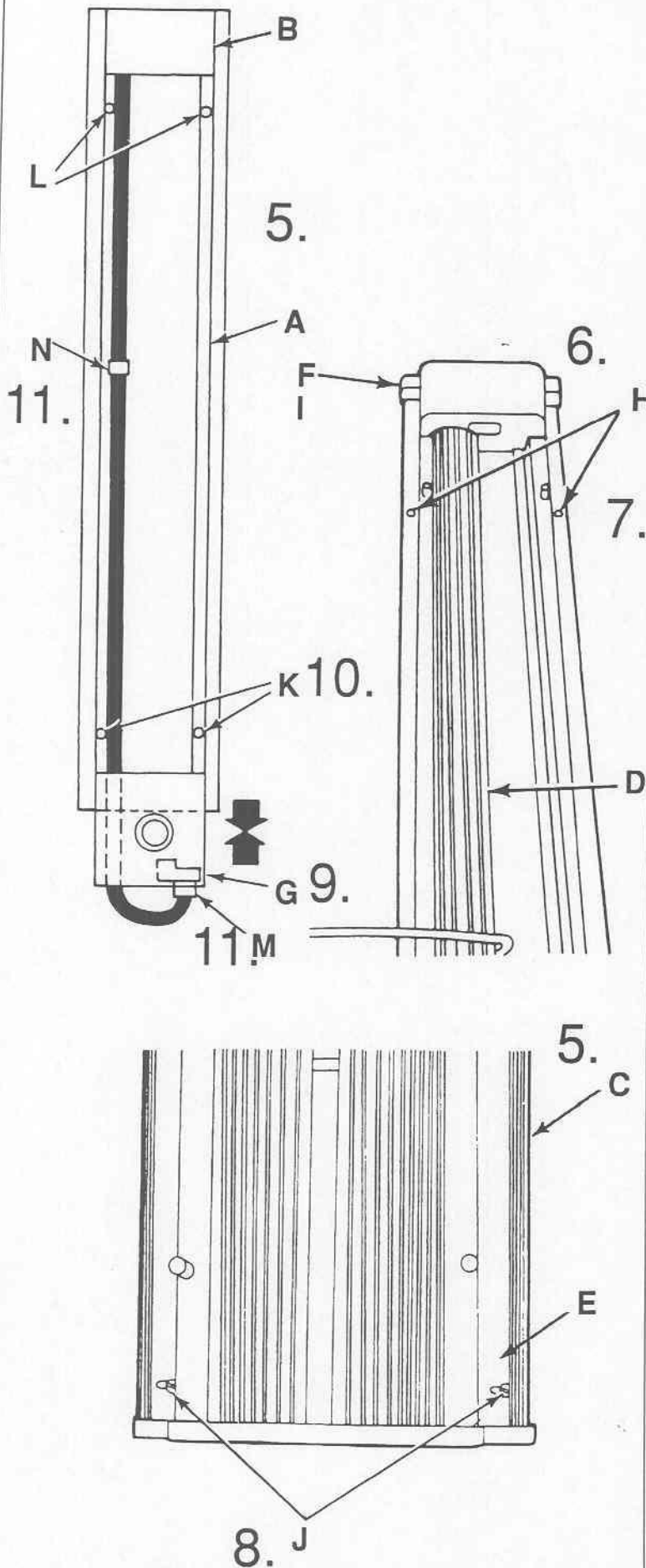
**NOTE:** The maximum height the LFTII may be mounted is 13'(3.96 m). However, Pelton & Crane does not recommend any mounting in excess of 10'(3.05 m).

3. Ensure green ground wire **D** is grounded at ground screw **E**.
4. Install wall switch between power supply and transformer. This provides for safety and convenience during installation or service. Wall switch can be switched off during electrical storms to prevent transformer damage caused by voltage overloads. Wire nuts **F** are not furnished.



## LFTII (TRACK LIGHT) INSTALLATION, continued

### Mounting Track And Trolley – LFTII



5. The LFTII track and trolley are shipped completely assembled. The track channel A and transformer B are mounted to a plywood pallet C. Two dress covers D, two side panels E, two end caps F and a light trolley G are attached to the channel.

6. To reach the four 17/64" diameter pre-drilled mounting holes H in the plywood pallet C, detach the two end caps F by removing two #10 x 1/2" round head slotted machine screws I from each end. Set end caps and screws aside.

7. Identify the four 17/64" diameter predrilled mounting holes H in the plywood pallet C.

8. Remove two #8 x 3/4" pan head slotted sheet metal screws J from each side panel. Lift away side panels. Set aside with screws.

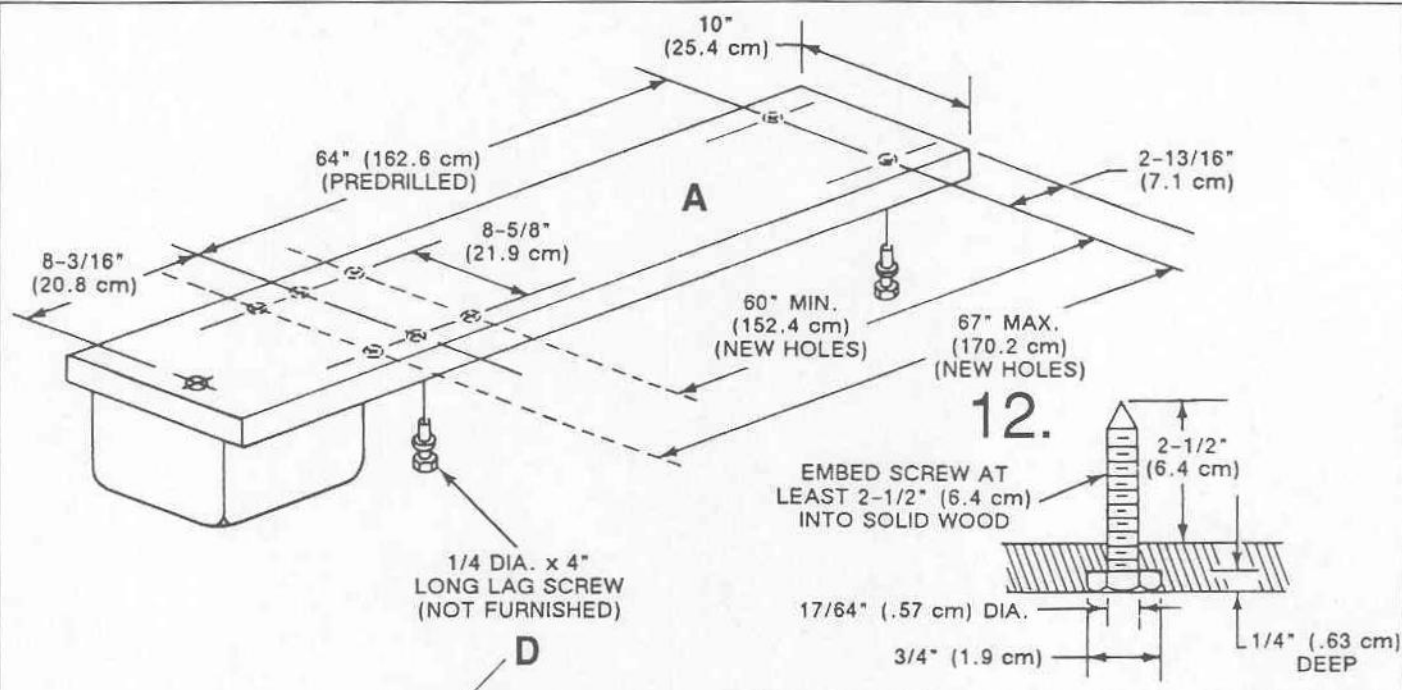
9. For easier installation, detach the trolley G from the channel before mounting the pallet.

10. Remove two stops K from the end of the track channel opposite the transformer box.

**NOTE: Do NOT remove side stops L.**

11. Disconnect power cord M at trolley bracket leaving cord intact under dress cover D and power cord clamp N.

Remove trolley and set aside.



## LFTII (TRACK LIGHT) INSTALLATION, continued

**12. NOTE:** Normally, further disassembly of the track is not necessary for installation. If additional mounting fasteners are required, drill and counterbore holes in plywood mounting pallet A as shown.

Continue installation using one of the three mounting situation instructions following.

### Mounting Pallet to Perpendicular Wood Joists – LFTII

Ensure ceiling substructure is firmly secured to support approximately 200 pounds live load. Use fasteners such as screws and bolts to secure the substructure rather than fasteners such as nails or glue.

**13.** Using four predrilled holes B in plywood pallet (3/4" x 10" x 76-13/16") mount to perpendicular wood joists C with four 1/4" x 4" lag screws D.

**NOTE:** Drill additional holes E if necessary.

Ensure pallet is level.

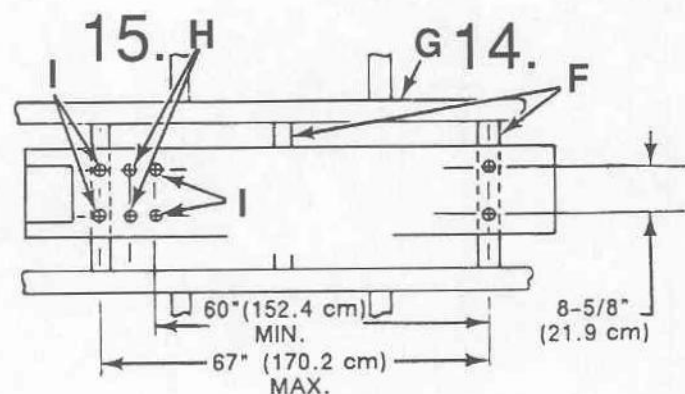
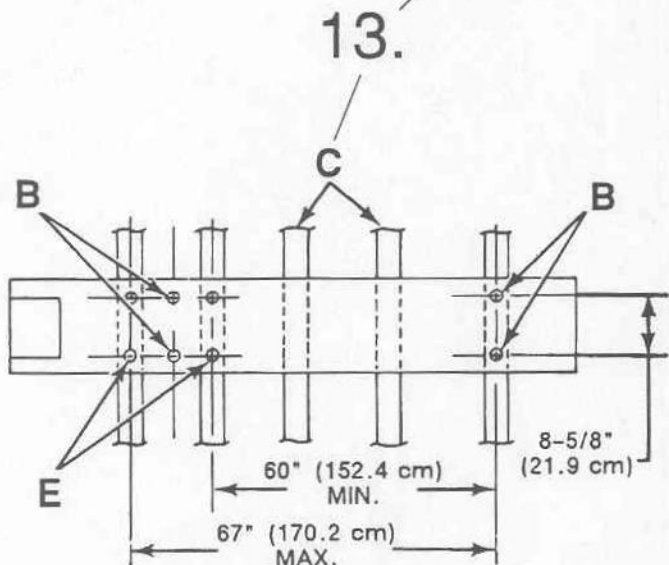
### Mounting Pallet to Parallel Wood Joists – LFTII

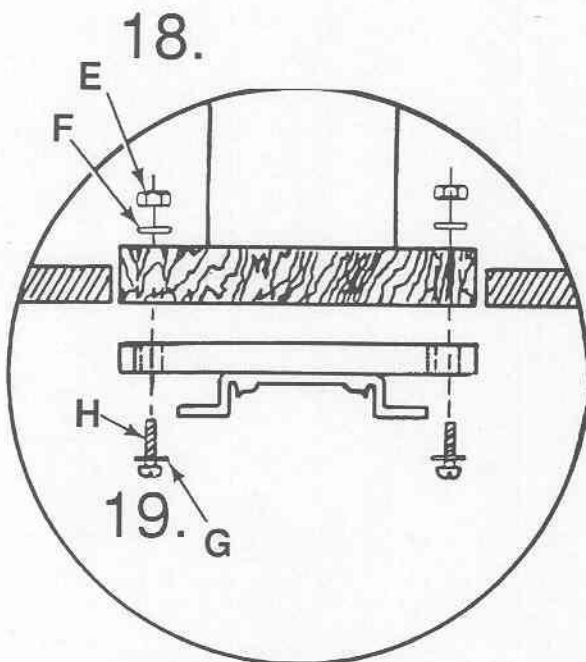
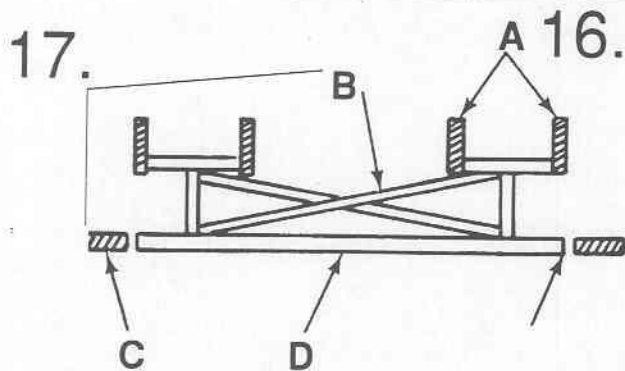
**14.** Install cross bracing F between the parallel joists G as shown. Ensure ceiling substructure is firmly secured to support approximately 200 pounds.

**15.** Using four predrilled holes H in plywood pallet (3/4" x 10" x 76-13/16"), mount to cross bracing F with four 1/4" x 4" lag screws D.

**NOTE:** Drill additional holes I on bracing joists F if necessary.

Ensure pallet is level.





## LFTII (TRACK LIGHT) INSTALLATION, continued

### Mounting Pallet to Suspended Ceiling – LFTII

16. Install joists **A** as shown.

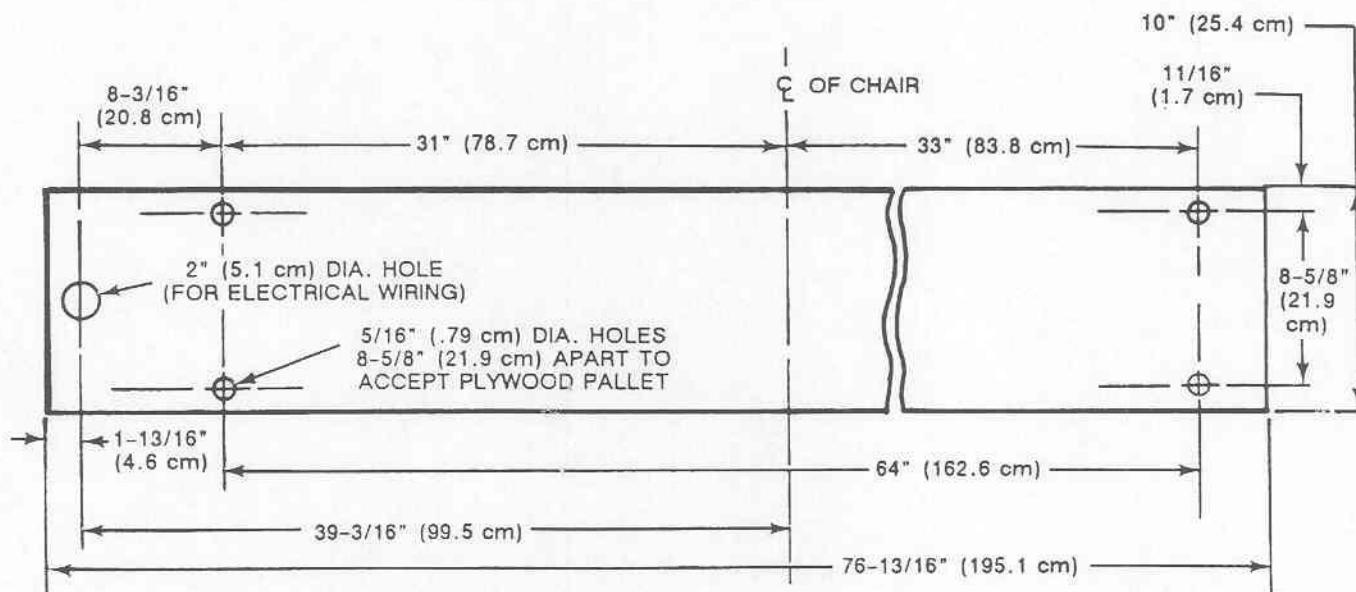
17. Install wood cross bracing **B** flush with ceiling **C**.

**NOTE:** If alternate method of construction is required, an optional Suspended Ceiling Kit (001372) is available from Pelton & Crane.

18. Install subpallet **D** or an equivalent brace as shown using nuts **E** and washers **F**.

19. Install plywood pallet using 3/4" O.D. flat washers **G** and bolts **H** as shown and ensure pallet is level.

Reattach track light components by reversing instructions on page 5.



## LFTII (TRACK LIGHT) INSTALLATION, continued

### Installation of Column – LFTII

20. Route wiring from trolley through column.
21. Screw end of column securely in the trolley.
22. Insert and tighten two trolley set screws.
23. Place a piece of electrical tape around a 1/8" drill bit to mark depth to which pilot hole is to be drilled.
24. After locating the 3/32" pilot hole in the trolley, drill a 1/8" hole through trolley/column assembly to a depth of 5/8". Drive in roll pin flush with outside of trolley.

### **⚠ WARNING**

Failure to mark drill bit, or failure to control depth of drill bit may result in electrical wiring damage and subsequent electrical shock.

### **⚠ WARNING**

Set screws must be tightened securely and roll pin installed to prevent column from unscrewing during operation. Failure to install roll pin and tighten set screws securely could result in light falling from ceiling.

**NOTE:** Ensure column is vertical to prevent trolley from drifting. Adjust pallet with shims if necessary.

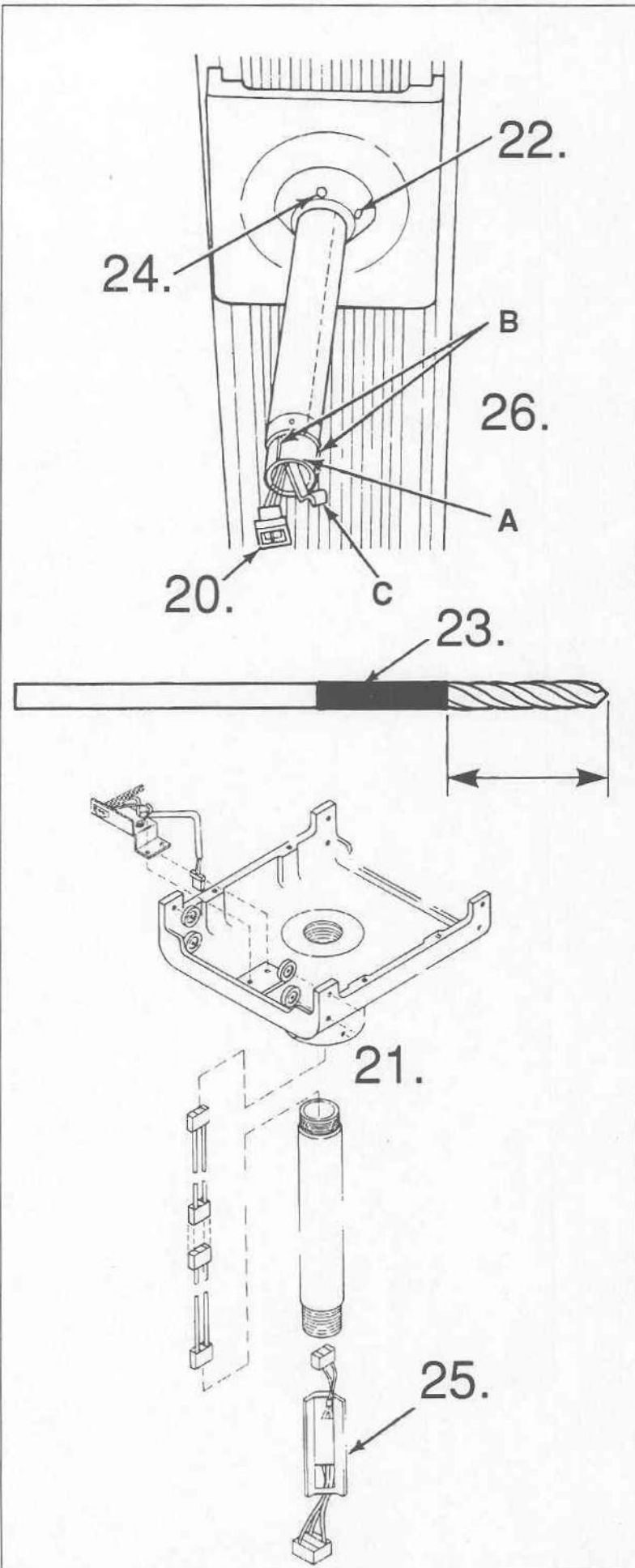
### Electronic Phase Control

25. Connect electronic phase control to wiring in column with 2-pin Mate-n-Lok® connector.

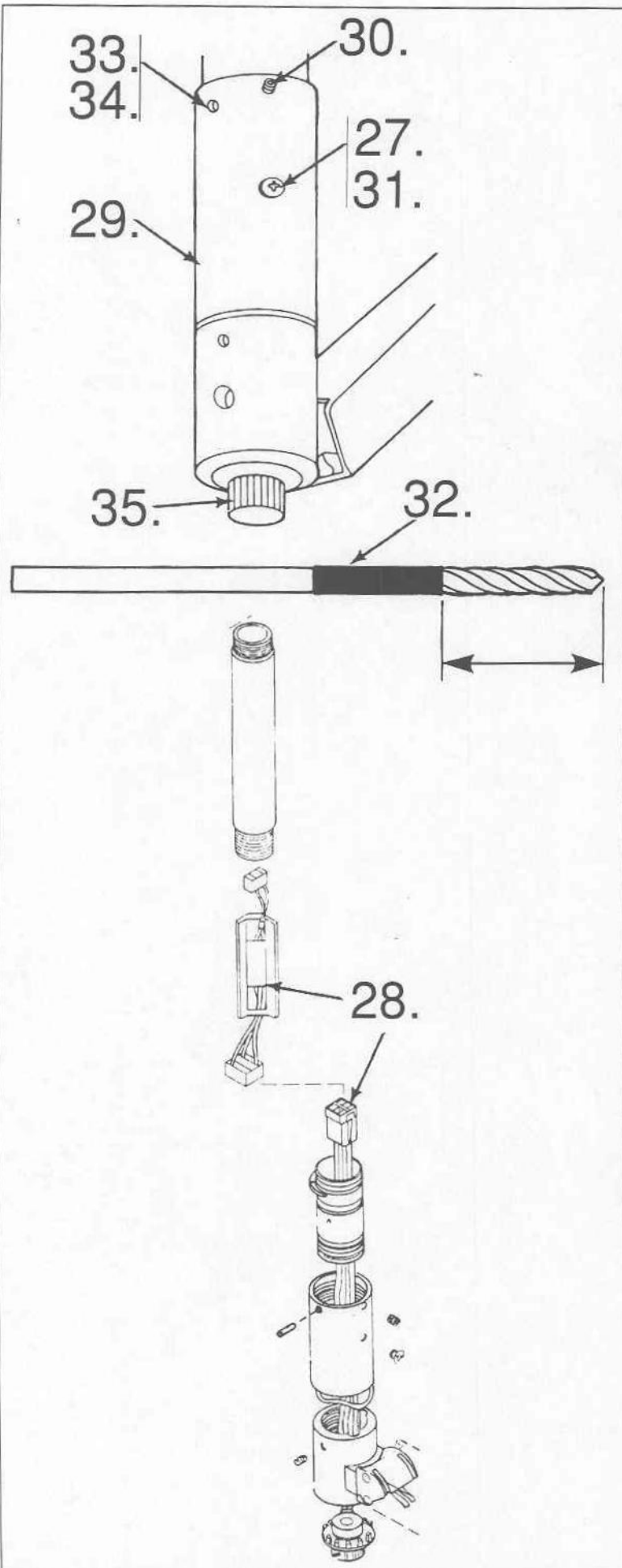
### **⚠ CAUTION**

To prevent wires from twisting, do not rotate electronic phase control with column.

26. Gently slide the electronic phase control into one column with column weld seam **A** centered between the heat sink ears **B**. The retaining spring **C** should engage the inside of the column.







## LFTII (TRACK LIGHT) INSTALLATION, continued

### Arm Assembly Installation – LFTII

27. Remove stop screw from arm mounting collar.
- Raise LFTII **arm assembly** close to column.
28. Connect electronic phase control to wiring in arm mounting collar with 4-pin Mate-n-Lok® connector.
29. Screw arm mounting collar to column.
30. Insert and tighten two column adapter set screws. Thread on column should not show.
31. Replace stop screw to prevent more than 360° rotation.

If column stop adjustment location is required, see adjustment section.

**NOTE:** Column stop adjustment must be performed before installation of roll pin.

### Secure Arm Assembly – LFTII

## ⚠ WARNING

Set screws must be tightened securely and roll pin installed to prevent column from unscrewing during operation. Failure to install roll pin and tighten set screws securely could result in light falling from ceiling.

32. Place a piece of electrical tape around a 1/8" drill bit to mark depth to which pilot hole is to be drilled.
33. Locate 3/32" pilot hole opposite set screw in column adapter and drill a 1/8" hole through the adapter/column assembly using drill bit.

## ⚠ WARNING

Failure to mark drill bit, or failure to control depth of drill bit may result in electrical wiring damage and subsequent electrical shock.

34. Drive in roll pin flush with outside edge of column adapter.

Make sure trolley rolls freely. For adjustment of trolley, refer to Adjustment section.

35. Apply power to LFTII. Inspect operation by turning on light and rotating dimmer control at base of column from lower to higher light intensity limits.

## LFTII-D (DUAL TRACK LIGHT) INSTALLATION

To install the LFTII-D, proceed as outlined on pages 6–10.

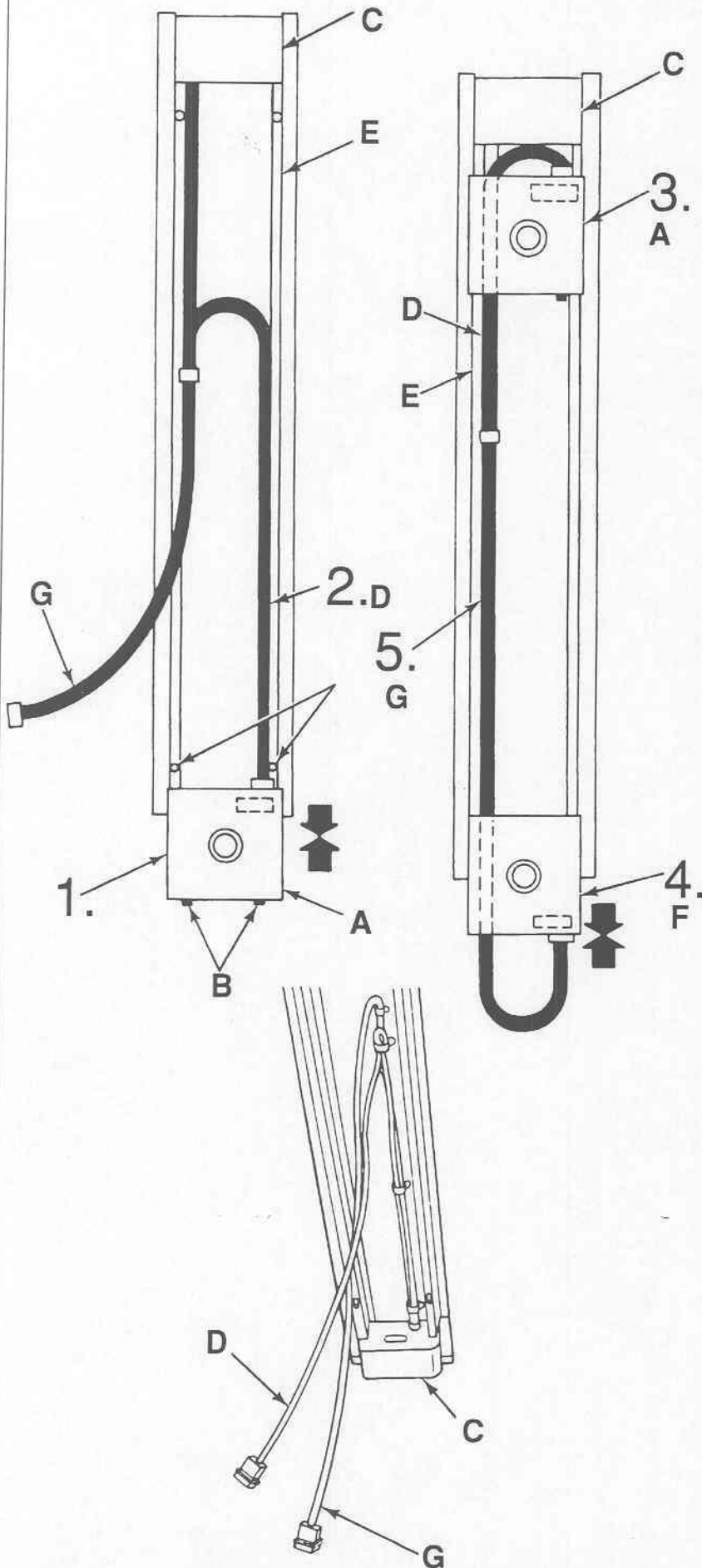
### To reattach Dual Track light components

1. Reverse instructions on page 6–7, items 9–12, then **partially** insert trolley #1 **A** in channel with bumpers **B** away from transformer box **C**.
2. Connect power cord #1 **D** to plug in trolley bracket.
3. Route trolley #1 down track channel **E** to transformer box end.
4. Partially insert trolley #2 **F** in channel as shown.
5. Route power cord #2 **G** under trolley #2 **E** and connect to plug in trolley bracket.

**NOTE:** Both power cords should form a radius within the dress covers as the trolleys roll along the channel.

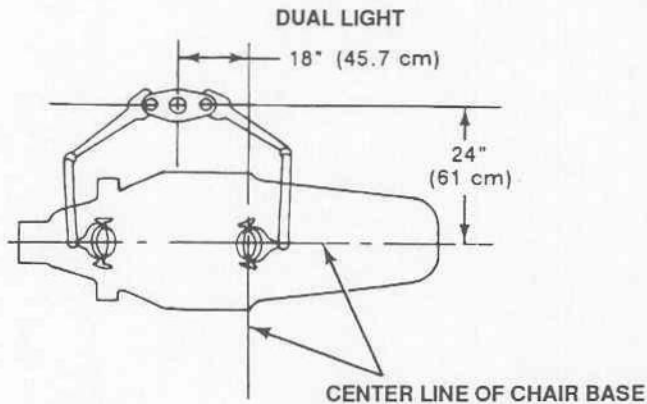
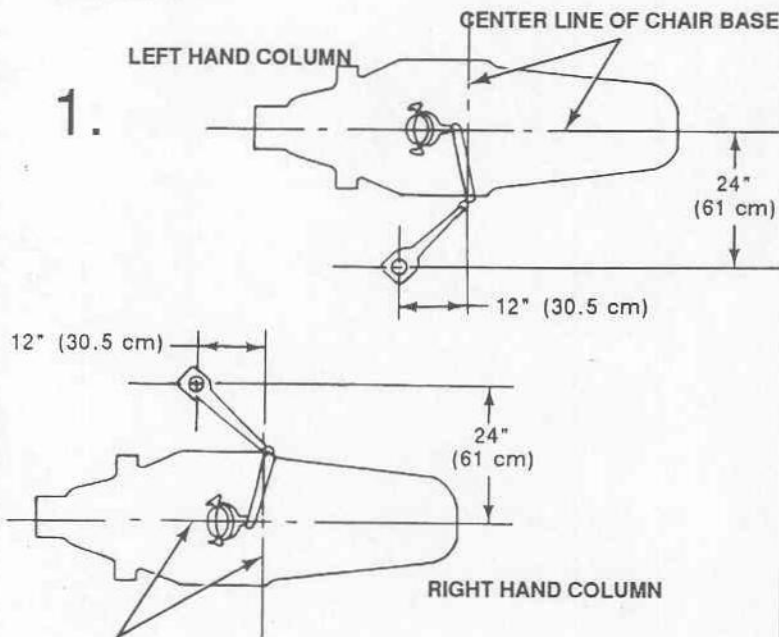
Continue installation by reversing instructions on page 5.

To complete installation, proceed as outlined on pages 8 and 9.

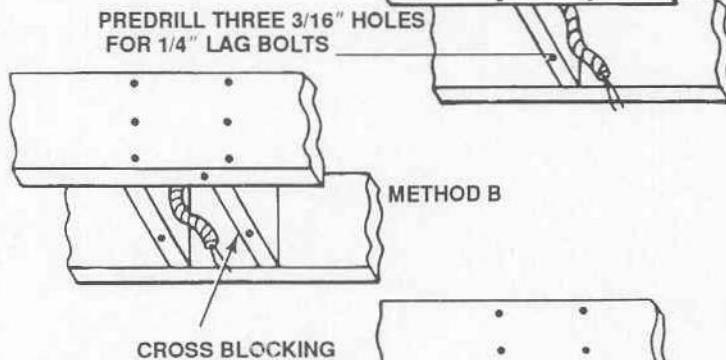




## SINGLE LIGHT



## 2. METHOD A



## 3. METHOD C

ARMORED CABLE FROM ELECTRICAL OUTLET BOX

## LFCII (COLUMN LIGHT) INSTALLATION

**NOTE:** If desired, tripod cover and column assembly may be ordered and installed before finished ceiling is in place. For new construction, a mounting plate assembly (007257) may be ordered to facilitate installation.

### 1. Positioning

Recommended ceiling positions for various methods of LFCII operation are shown. Location may be varied. Obtain approval from doctor before locating framing and electrical outlet.

**NOTE:** The maximum height the LFCII may be mounted is 13' (396.2 cm). However, Pelton & Crane does not recommend any mounting in excess of 10' (304.8 cm).

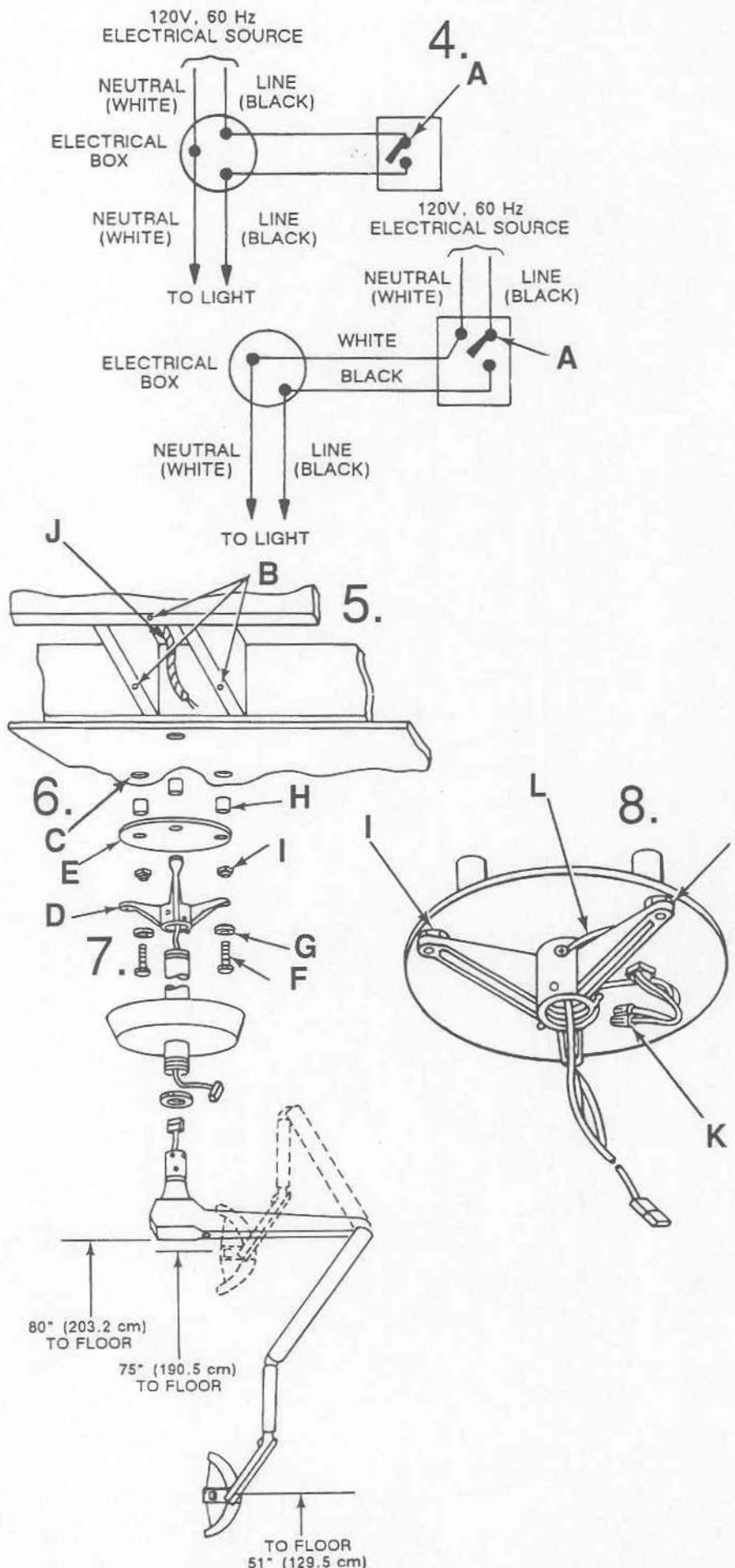
### 2. Framing

Provide adequate framing to support approximately 200 pounds dead load. Locate framing so ceiling joists A and blocking between joists are positioned so that mounting bolts through legs of tripod can be screwed directly into framing.

### 3. Wiring

Stub out 3/8" flexible armored conduit from electrical box in ceiling to location as shown. A 1.6 amp, 120 VAC, 60 Hz electrical supply line is required for the LFCII, or a 3.2 amp, 120 VAC, 60 Hz line for the LFCII-D.

Protect circuit with a 15 amp fuse or circuit breaker. (Also refer to LFCII and LFCII-D installation Template, 096021).



## LFCII (COLUMN LIGHT) INSTALLATION, continued

4. Attach conduit to connector on ceiling plate. See wiring diagram of power supply entering electrical or switch box. Install wall switch **A** between power supply and transformer. Wall switch can be switched off during electrical storms to prevent transformer damage caused by voltage overloads.

### Tripod and Column Installation

5. Drill three 3/16" pilot holes **B** to mount lag bolts.
6. Drill three 3/4" holes **C** through sheet-rock, acoustical tile or plaster.

**NOTE:** For electrical supply connections, use wiring suitable for at least 90°C (194°F).

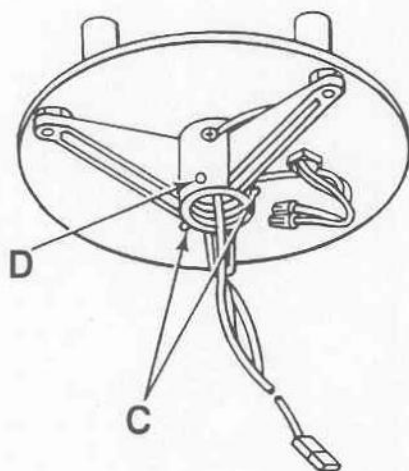
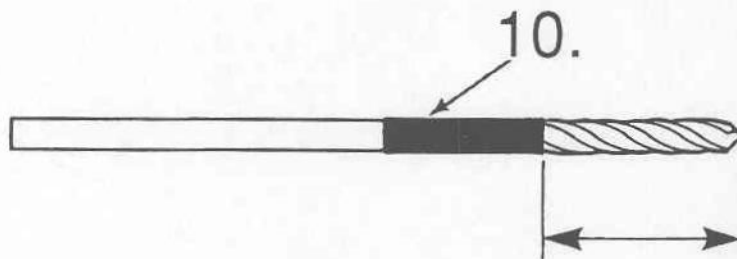
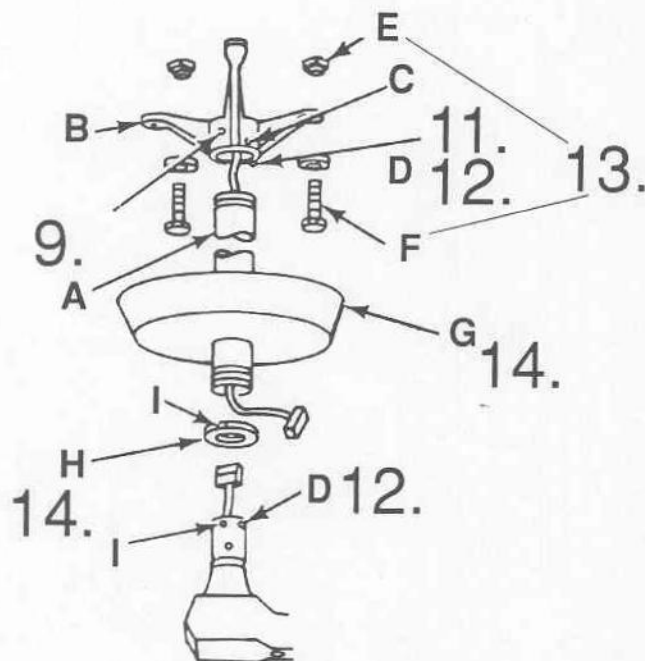
7. Secure tripod **D** and ceiling plate **E** to framing with 1/4" x 4" lag bolts **F** and washers **G**. The 3/4" diameter spacers **H** should be in **direct** contact with the framing. Insert ceiling plate between the 3/4" spacers and adjusting nuts **I**.

**NOTE:** If spacers rest against soft sheetrock, acoustical tile or plaster, the light may be unstable.

8. Connect tripod wires to electrical supply wires in armored cable **J** with wire nuts **K**. Connect ground wire **L** to tripod with screw and washer.

## LFCII (COLUMN LIGHT) INSTALLATION, continued

### Column Installation



9. Screw end of column A into tripod B. Insert and tighten both locking set screws C in tripod.
10. Place a piece of electrical tape around a 1/8" drill bit to mark depth to which pilot hole is to be drilled.
11. After locating the 3/32" pilot hole in the tripod, drill a 1/8" hole through tripod/column assembly.

### **! WARNING**

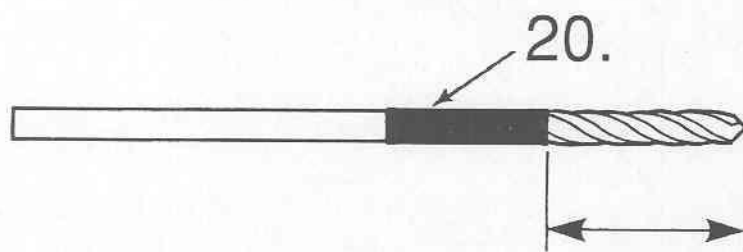
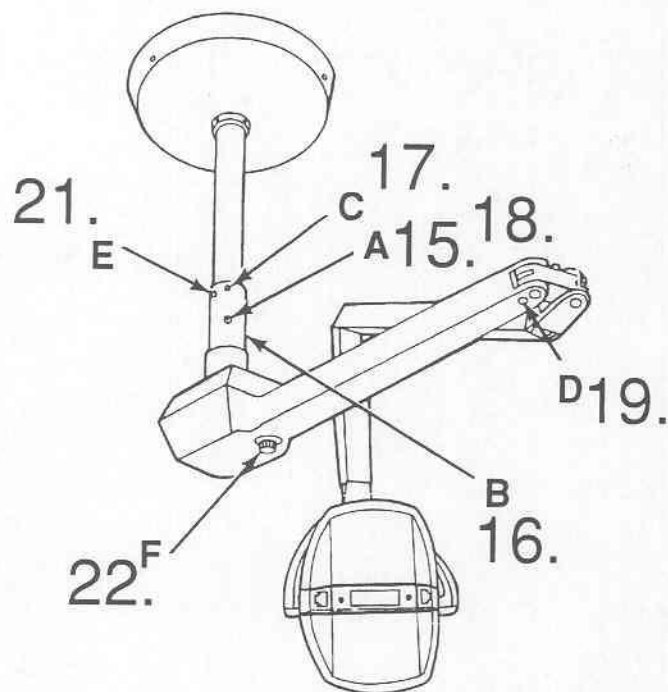
Failure to mark drill bit, or failure to control depth of drill bit may result in electrical wiring damage and subsequent electrical shock.

12. Drive in roll pin D flush with outside edge of tripod.

### **! WARNING**

Set screws must be tightened securely and roll pin installed to prevent column from unscrewing during operation. Failure to install roll pin and tighten set screws securely could result in light falling from ceiling.

13. Ensure column is plumb. Adjust leveling nuts E on tripod until column is plumb. Loosen lag bolts F slightly before making adjustment. When column is vertical, securely tighten lag bolts.
14. Slip cover G and collar H up column and tighten two set screws I.



## LFCII (COLUMN LIGHT) INSTALLATION, continued

### Arm Assembly Installation

15. Remove stop screw **A** from rear arm mounting collar **B**.

Raise LFCII rear arm assembly close to column. Connect column wiring to rear arm assembly wiring with Mate-n-Lok® connector.

16. Screw rear arm mounting collar **B** to column.
17. Insert and tighten two set screws **C**. Column thread should not show.
18. Replace stop screw **A** to prevent more than 360° rotation.
19. If column stop adjustment position is required, note position adjustment screw **D** and refer to Adjustment section.

**NOTE:** Column stop adjustment must be performed before installation of roll pin.

### Secure Arm Assembly

20. Place a piece of electrical tape around a 1/8" drill bit to mark depth to which pilot hole is to be drilled.

### **WARNING**

Failure to mark drill bit, or failure to control depth of drill bit may result in electrical wiring damage and subsequent electrical shock.

21. Locate 3/32" pilot hole opposite set screw in column adapter and drill a 1/8" hole through the adapter/column assembly. Drive in roll pin **E** flush with outside edge of column adapter.

### **WARNING**

Set screws must be tightened securely and roll pin installed to prevent column from unscrewing during operation. Failure to install roll pin and tighten set screws securely could result in light falling from ceiling.

22. Apply power to LFCII. Inspect operation by turning on light and turning dimmer switch **F** to each of the three positions.

### Universal Arm Adaptation (For Right or Left-Handed Operation)

To adapt the LFCII for left-handed operation, follow procedures as outlined on pages 11-13.

## LFCII-D (DUAL COLUMN LIGHT)

To install the LFCII-D, proceed as outlined on pages 11-13.

1. Connect **short** wiring harness **A** (3 harnesses are provided) to column wiring with Mate-n-Lok® connector.

### Column Installation – LFC

2. Screw dual column mounting bracket **B** securely on column **C**. Ensure bracket is parallel to chair. Tighten two set screws.
3. Place a piece of electrical tape around a 1/8" drill bit to mark depth to which pilot hole is to be drilled. After locating the 3/32" pilot hole between two set screws in the dual mount bracket, drill a 1/8" hole through dual bracket/column assembly.

### **⚠ WARNING**

Failure to mark drill bit, or failure to control depth of drill bit may result in electrical wiring damage and subsequent electrical shock.

4. Drive in roll pin **D** flush with outside edge of dual bracket.

### **⚠ WARNING**

Set screws must be tightened securely and roll pin installed to prevent column from unscrewing during operation. Failure to install roll pin and tighten set screws securely could result in light falling from ceiling.

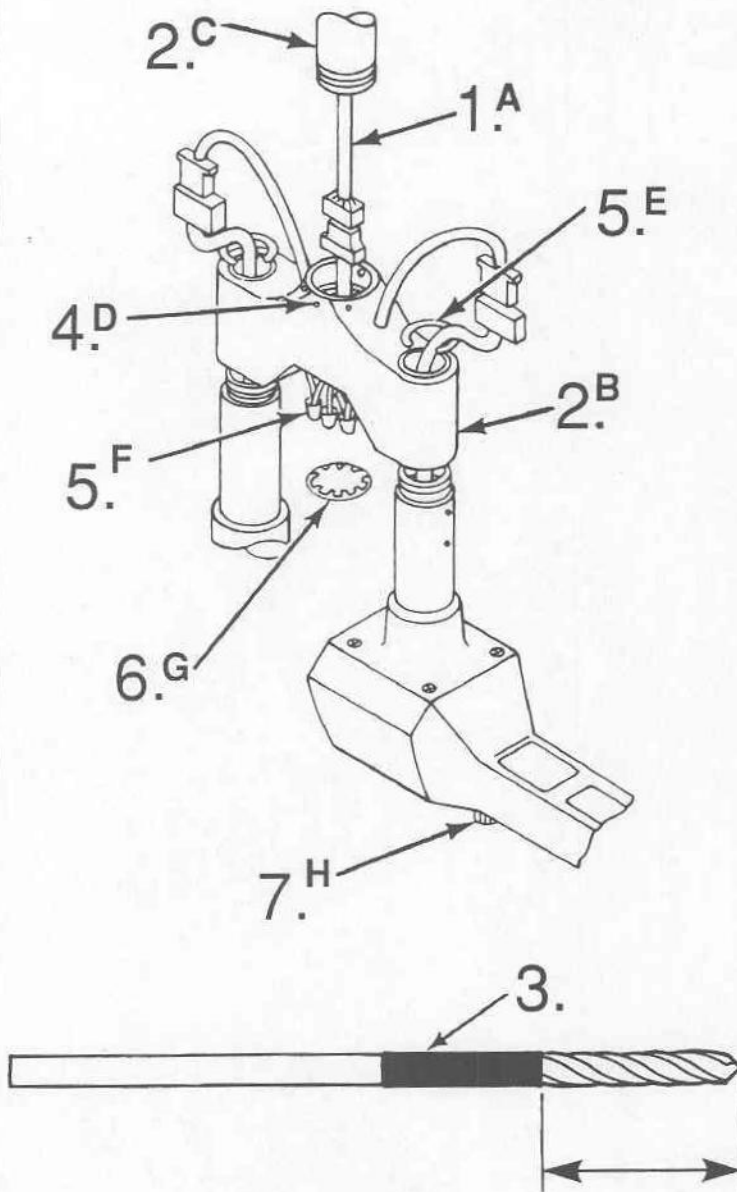
5. Route **longer** wiring harness through retaining rings **E** and through each hole in side of dual column mounting bracket. Connect the nine wires with wire nuts **F** (white to white, green to green, black to black).

Repeat above step for second light.

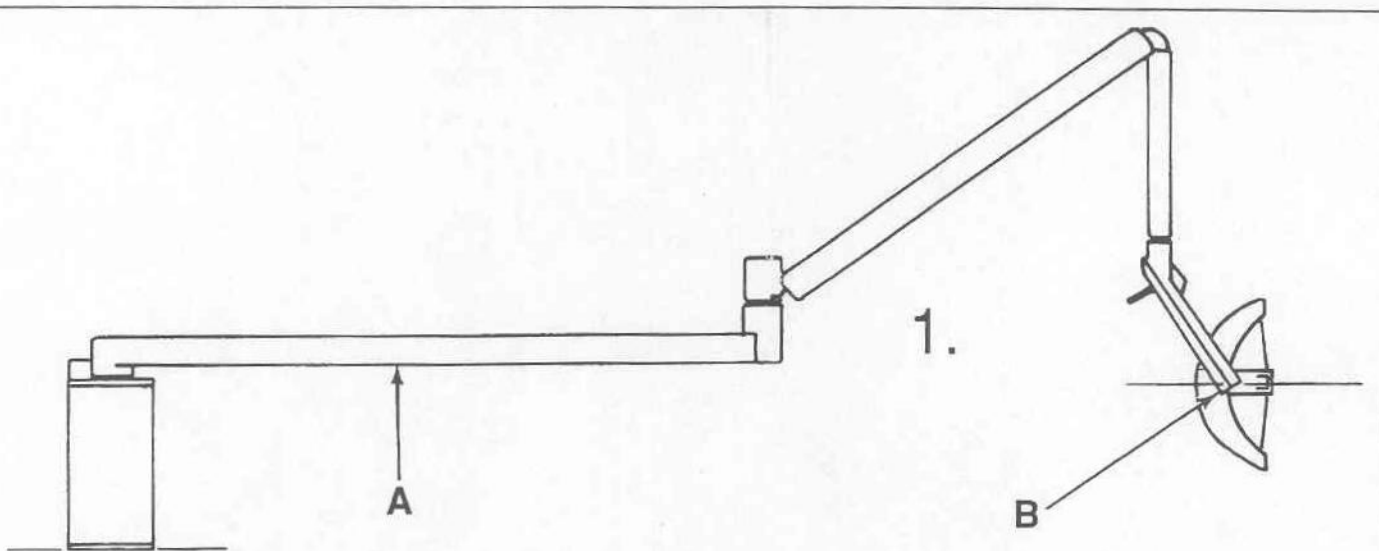
6. Route excess wiring into the mounting bracket and carefully insert plug cover **G**.
7. Apply power to LFCII-D. Inspect operation by turning on lights and turning dimmer switches **H** to the **three** positions.

### Universal Arm Adaptation (For Right or Left-Handed Operation)

To adapt the LFCII-D for left-handed operation, proceed as outlined on page 2.







## LFWII (WALL LIGHT)

### Installation of LFWII-2 (Two-Arm Wall Light)

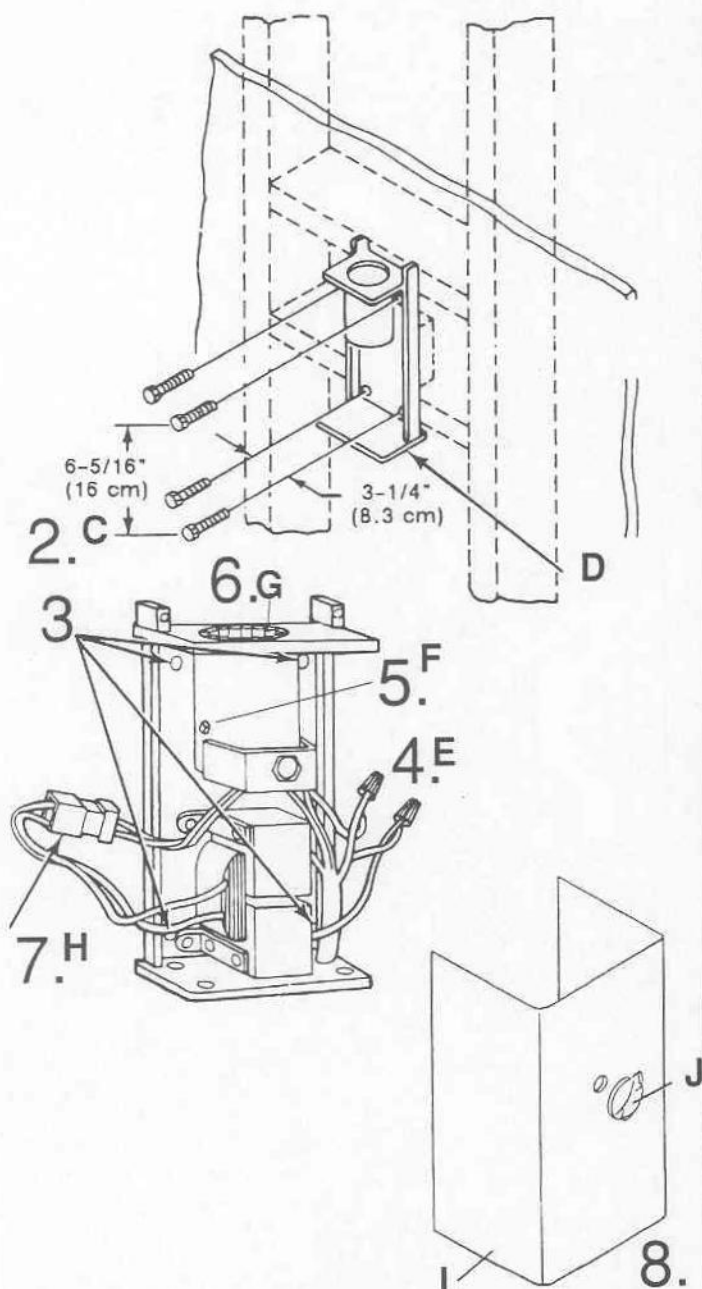
1. Position LFWII-2 as shown, with the bottom of the wall mounting box 67-1/2" (171.5 cm) from the floor, the bottom of the arm A 76" (193 cm) from the floor and the yoke/reflector joint B 50" (127 cm)-74" (188 cm) from the floor. Location may be varied. Obtain approval from doctor before locating framing and electrical outlet.

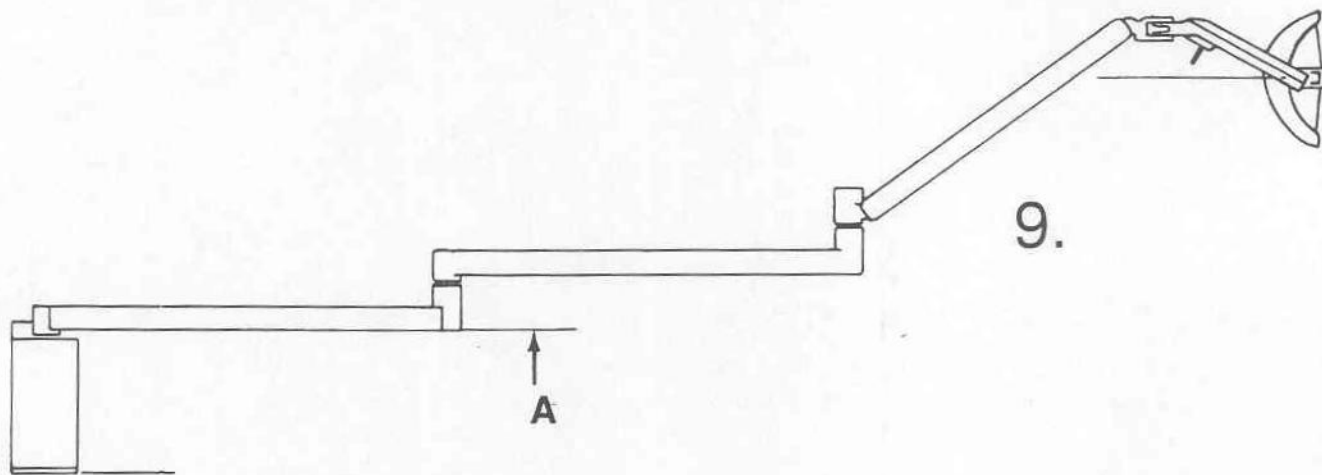
2. Provide adequate framing to support approximately 200 pounds dead load. Framing should allow all four mounting bolts C to enter solid wood.

Provide a 1.6 amp, 120 VAC, 60 Hz electrical supply line to mounting bracket D through opening in rear of bracket 73-1/4" (186 cm) from floor and centered on the four mounting holes. Protect circuit with a 15 amp fuse or circuit breaker. Install wall switch between power supply and transformer. This provides for safety and convenience during installation or service. Wall switch can be switched off during electrical storms to prevent transformer damage caused by voltage overloads.

3. Install mounting bracket with four 1/4" x 3" lag bolts.
4. Connect electrical supply wiring to wall bracket wiring with wire nuts E.
5. Attach ground wire with screw F and washer.
6. Place light rear arm in wall bracket. Ensure stainless steel washer G is between rear arm and wall bracket.
7. Connect light wiring to wall mount bracket wiring with Mate-n-Lok® connector H.
8. Install wall bracket cover I and dimmer switch control knob J.

Apply power to LFWII-2. Inspect operation by turning on light and turning dimmer switch to the three positions.



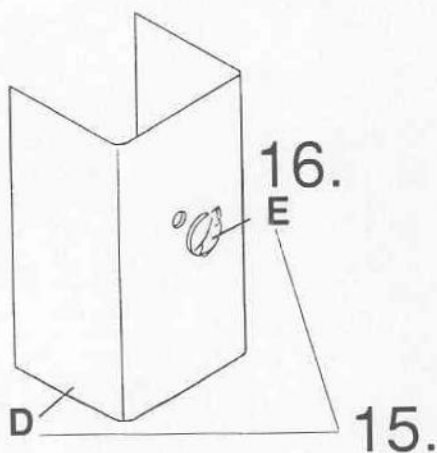
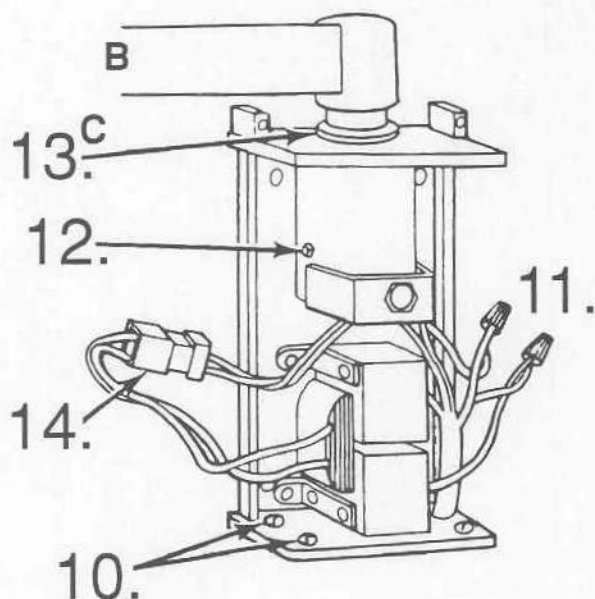


## LFWII (WALL LIGHT), continued

### Installation of LFWII-3 (Three Arm Wall Light)

9. Position LFWII-3 as shown, with the bottom of the wall mounting box 49-1/2" (125.7 cm) from the floor, the bottom of the arm A 58" (147.3 cm) from the floor.

To install the LFWII-3, proceed as outlined on page 16.



## LFLII (LABORATORY LIGHT)

### Installation of LFLII

Provide a 1.6 amp, 120 VAC, 60 Hz electrical supply line to mounting bracket. Protect circuit with a 15 amp fuse or circuit breaker. Install wall switch between power supply and transformer. This provides for safety and convenience during installation or service. Wall switch can be switched off during electrical storms to prevent transformer damage caused by voltage overloads.

10. Install mounting bracket with four screws.
11. Connect electrical supply wiring to lab mount wiring with wire nuts.
12. Attach ground wire with screw and washer.
13. Place light rear arm B in lab mount. Ensure stainless steel washer C is between rear arm and lab bracket.
14. Connect light wiring to lab mount bracket wiring with Mate-n-Lok® connector.
15. Install lab mount bracket cover D and dimmer switch control knob E.
16. Apply power to LFLII. Inspect operation by turning on light and turning dimmer switch to the three positions.



## **LFI Autoclavable Handles (For All Models)**

### To install autoclavable handles

1. Grasp autoclavable handles on either side, placing thumbs underneath slides **A**.

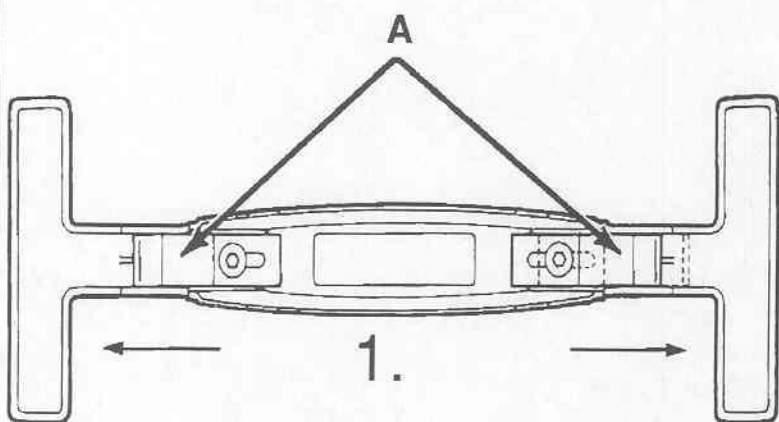
Retract spring-loaded slides by pushing thumbs outward.

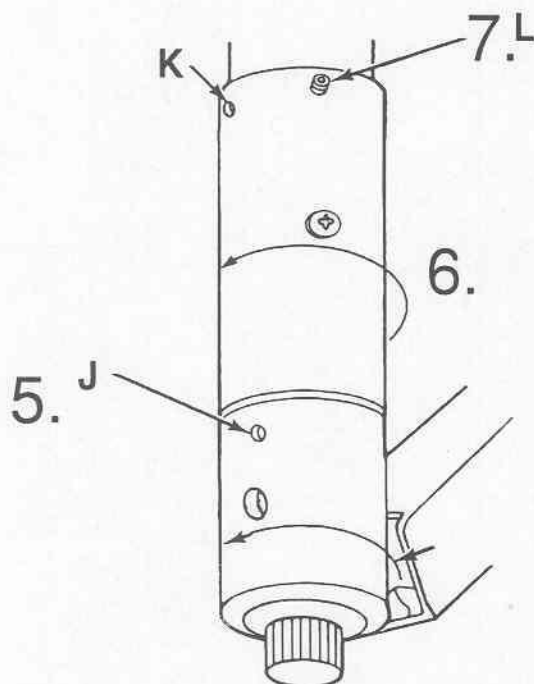
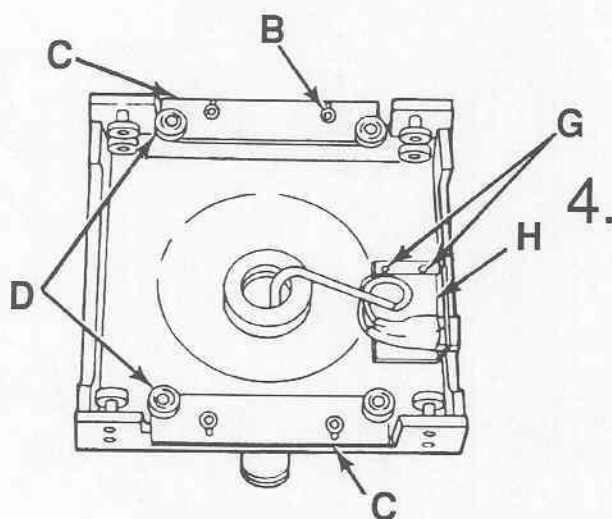
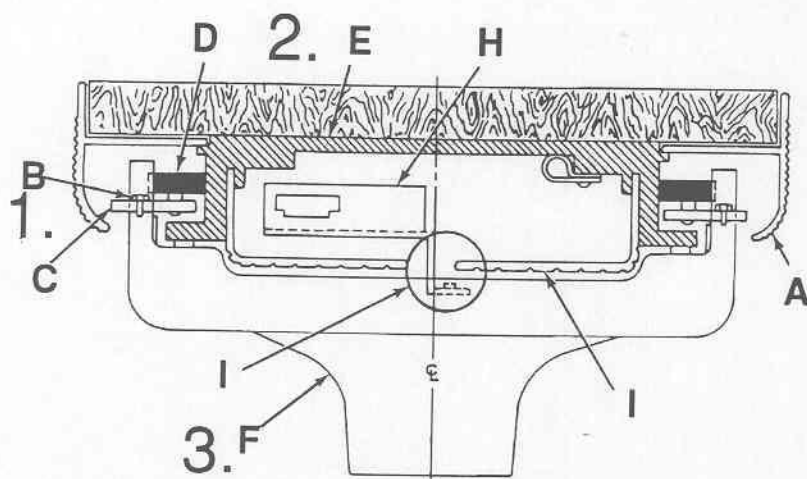
Position handles over frame and release slide, locking handles into place.

### To remove autoclavable handles

Grasp handles on either side, placing thumbs underneath slides.

Retract spring-loaded slides by pushing thumbs outward and lift off handles.





## ADJUSTMENTS

### LFTII and LFTII-D (Track Lights) Trolley Adjustments

If factory-adjusted side rollers become misaligned in shipping, adjustment will be necessary before installing the two side panels A.

1. Loosen two adjusting plate screws B on adjusting plates C.
2. Position side rollers D against channel E and tighten adjusting screws.
3. Inspect freedom of trolley F movement and repeat necessary adjustments.
4. Loosen cord bracket screws G and center cord bracket H between dress covers I. Tighten cord bracket screws.

### Arm Joint Stiffness Adjustment (For Models LFCII, LFTII and LFTII-D)

5. Remove set screw J.
6. Rotate arm **counterclockwise** (view up) to decrease joint stiffness.  
Rotate arm clockwise to increase joint stiffness.

Reinstall set screw.

### Adjustment of Column Stop Position (For Models LFCII, LFTII and LFTII-D)

**NOTE:** Column stop adjustment must be performed before installation of roll pin K.

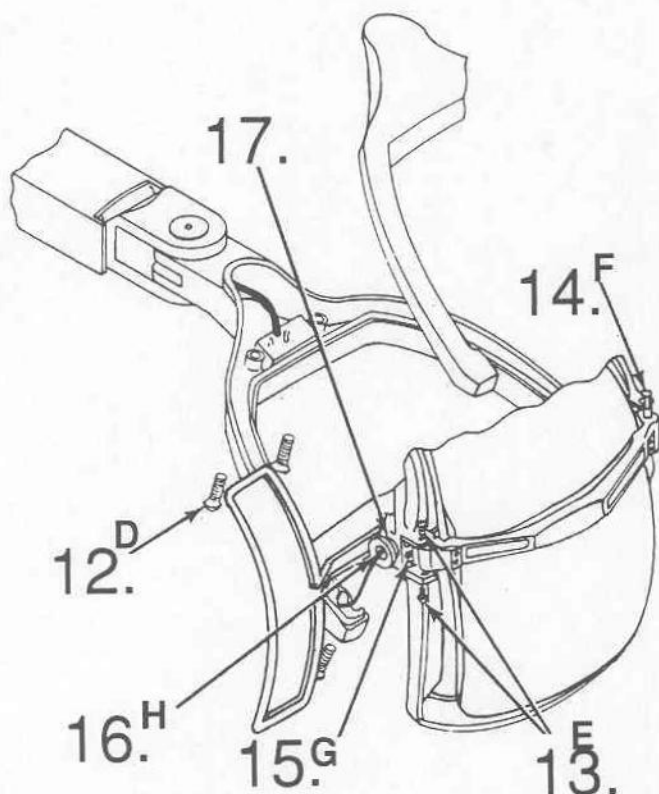
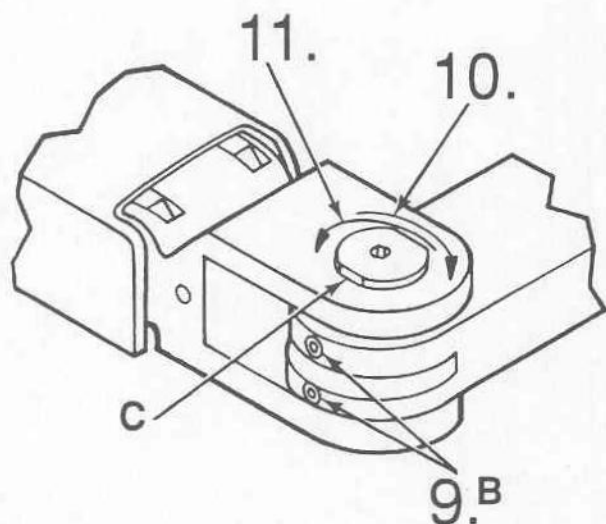
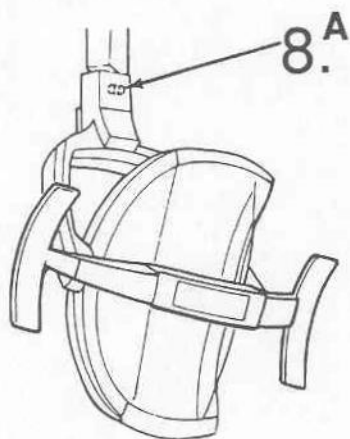
Rotate arm **clockwise** (view up) until it hits stop.

7. To move stop position, remove two locking set screws L and loosen collar by turning **counterclockwise** until stop is in desired position.

Reinstall two set screws.

## **⚠ WARNING**

Set screws must be tightened securely and roll pin installed to prevent column from unscrewing during operation. Failure to install roll pin and tighten set screws securely could result in light falling from ceiling.



## ADJUSTMENTS, continued

### Adjustment of Yoke Stop Position (For Models LFCII, LFCII-D, LFTII, LFTII-D and LFWII-2)

Determine stop position by rotating yoke and head until it hits stop.

8. To change position, loosen set screw **A** in side of yoke.

Rotate yoke to desired stop position.

Retighten set screw.

### Knuckle Joint Adjustment (For Models LFI, LFCII, LFCII-D, LFWII-3 and LFLII)

9. Loosen **two** set screws **B**.

10. Rotate snubbing pins **clockwise** to increase knuckle joint stiffness.

11. Rotate snubbing pins **counterclockwise** to decrease knuckle joint stiffness.

**NOTE:** Flat side of snubbing pins **C** should always be in line with set screws after completing adjustment as shown.

Retighten set screws.

### Adjustment of Yoke/Head Stiffness (For all Models)

12. Rotate head to position shown and remove **four** screws **D** holding yoke cap in place. Remove yoke cap.

13. Remove **two** screws **E** holding glass guard to frame.

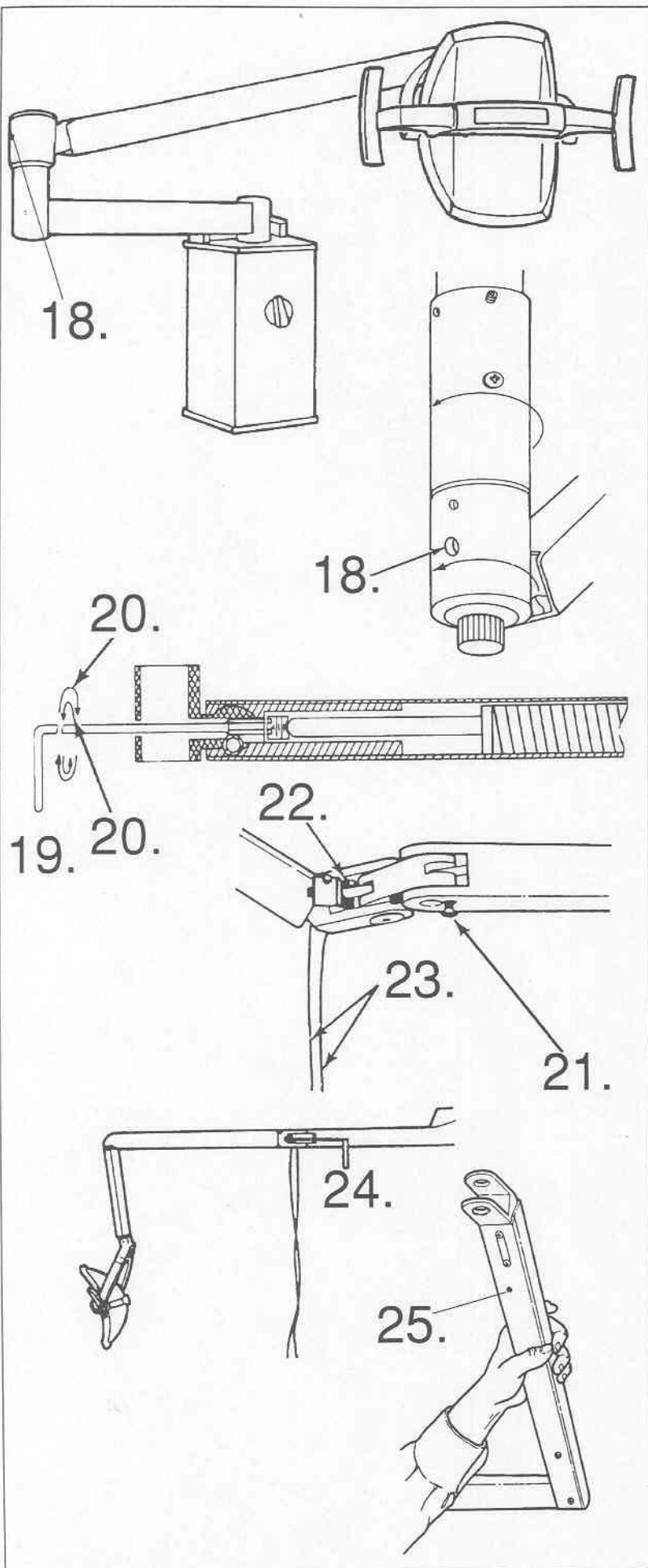
14. Push lever pin **F** in and remove reflector and glass guard assembly. Do not lose pivot pin.

15. Lift out frame assembly. Loosen set screw **G** on each side of frame.

16. Turn **black** pivot screw **H** **clockwise** to increase stiffness. Turn **counterclockwise** to decrease stiffness.

17. Retighten set screws. Take care not to over-tighten. End of screw should lightly rest against flat side of black pivot screw.

Reinstall frame assembly, reflector, glass guard assembly and cap, using care **not** to pinch any electrical wiring.



## ADJUSTMENTS, continued

**NOTE:** For additional information about arm spring installation and replacement, see Arm Spring Replacement Installation Instructions, 1531982.

### **WARNING**

Ensure tension has been released from arm spring.

Arm Spring Adjustment (For Models LFTII, LFTII-D, LFWII-2, LFWII-3 and LFLII)

18. Carefully reposition wiring in adjustment hole A.
19. Insert 5/16" x 9" long "T" handle wrench or Pelton & Crane tool (016749). Light arm must be horizontal before wrench can be inserted.
20. Turn wrench **clockwise** to increase lift force of arm. Turn **counterclockwise** to decrease lift force of arm.

Arm Spring Adjustment (For Models LFI, LFCII and LFCII-D)

21. Remove position screw and align rear arm and arm adapter.
22. Snap off **black plastic cap**.
23. Pull approximately 3" (7.6 cm) of wiring from rear arm and slide black plastic cap down wiring. Separate wiring so wrench may be inserted.
24. Rotate front arm 90° to arm adapter and insert 5/16" x 9" long hex wrench or Pelton & Crane tool (016749). Make sure light arm is horizontal before inserting wrench.

Turn wrench **clockwise** to increase lift force of arm. Turn **counterclockwise** to decrease lift force of arm. The spring lift force is sensitive to screw rotation (use 1/4 turn increments)

**NOTE:** Equal force (or up to twice as much force down) should be required to move light up or down.

Route excess wiring into rear arm and reinstall black plastic cap.

Reinstall position screw.

Friction Adjustment (for all models)

**NOTE:** Once spring is counter-balanced, friction adjustment may be necessary.

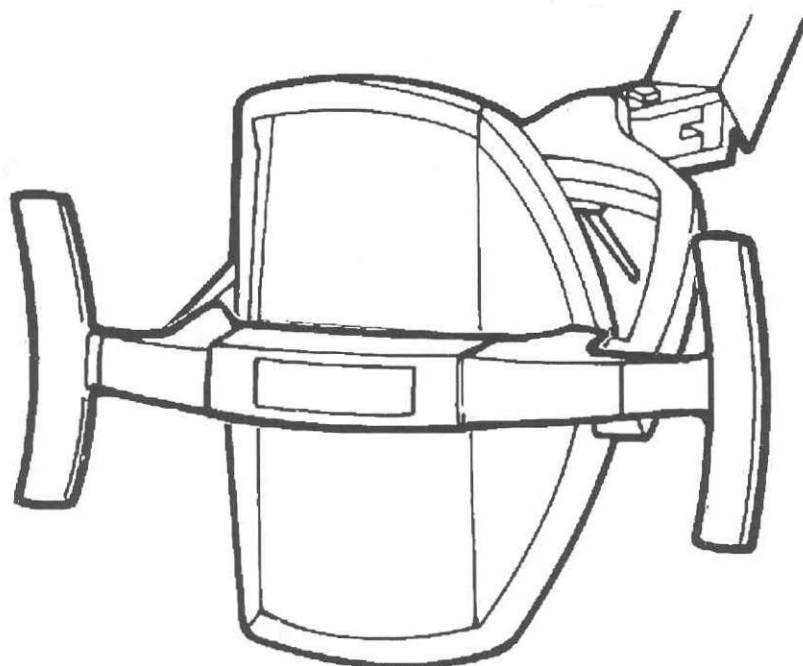
25. If up-drift or down-drift occurs, tighten screw (clockwise) with a 9/64" (1.4 cm) "T" handle wrench through the friction adjustment hole.

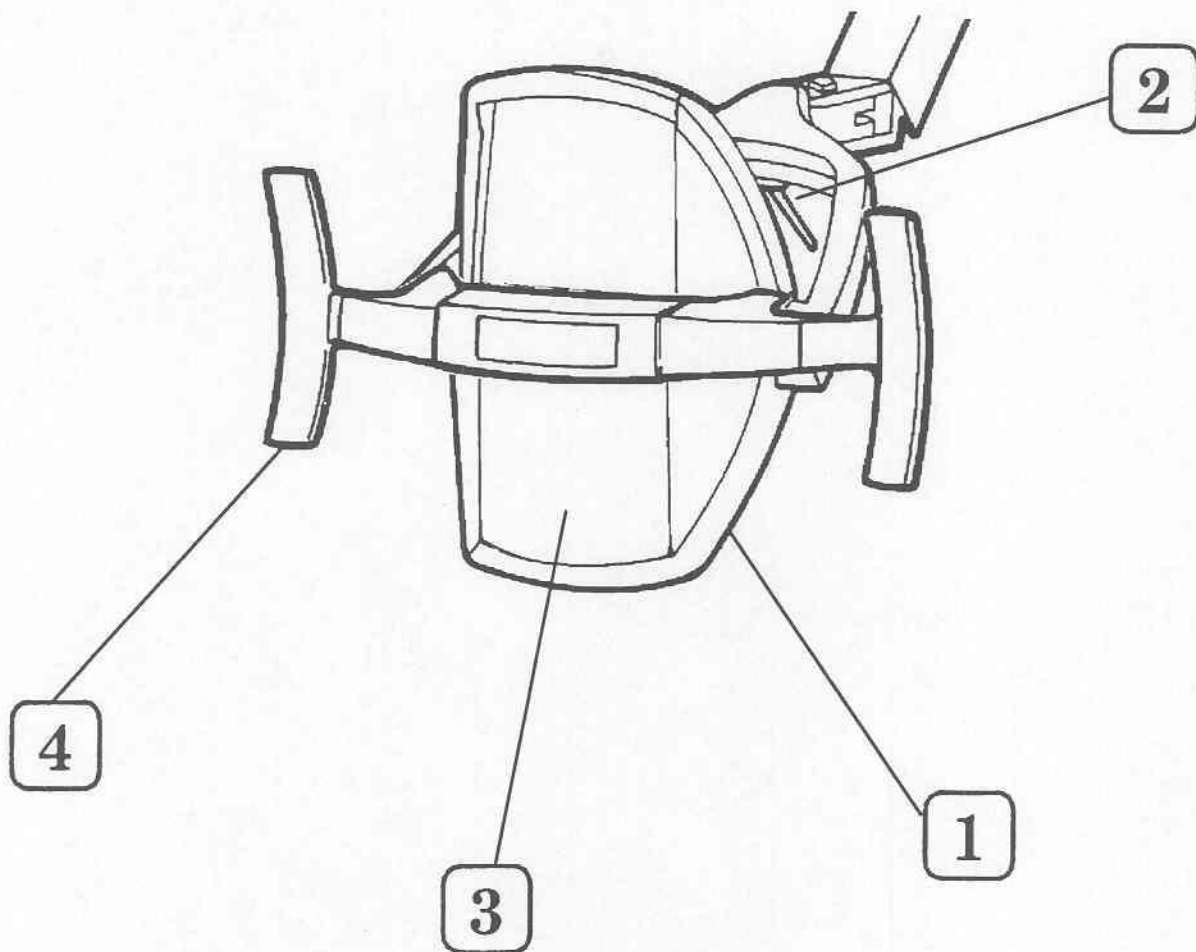


# Light Fantastic II

## Operating Instructions

**D**







# Safety Warnings

## CAUTION

Caution messages appear before procedures which, if not observed, could result in damage to equipment.

## WARNING

Warning messages alert you to a specific procedure or practice which, if not followed correctly, could cause personal injury or damage to equipment.

## DANGER

Danger messages alert you to a specific procedure or practice which, if not followed correctly, could cause serious personal injury.

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**1**

page 4

**Familiarization**

**2**

page 7

**Operation**

**3**

page 8

**Maintenance and  
Adjustments**

**4**

page 11

**Parts Replacement**

# 1

## FAMILIARIZATION

### LFII (Unit and Chair Light)

#### Dimmer Control

The dimmer control **A**, located on back of the rear arm, adjusts to three levels of intensity. The LO, Med and HI settings provide approximately 1500, 2000 and 2500 footcandles of light intensity, respectively.

#### ON/OFF Switch

The ON/OFF switch **B** is located behind the head.

#### Lamp

The miniature quartz halogen lamp **C** lasts many times the life of conventional lamps. Its self-cleaning process maintains constant light intensity. The lamp may be replaced in seconds and requires no tool.

#### Plastic Shield

The plastic shield **D** prevents water spray from splashing on the glass reflector and lamp. It also retains broken glass in the unlikely event a lamp explodes.

### ⚠ WARNING

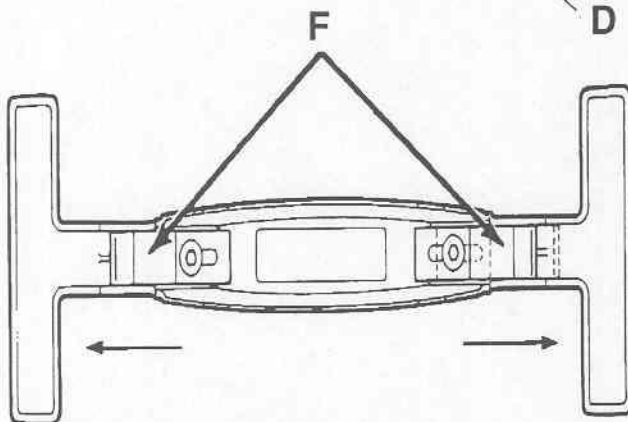
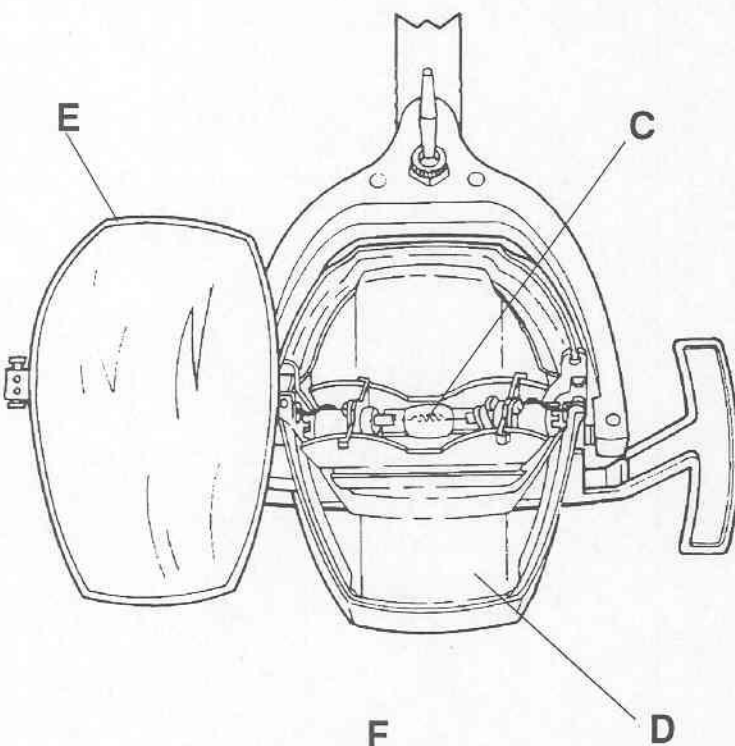
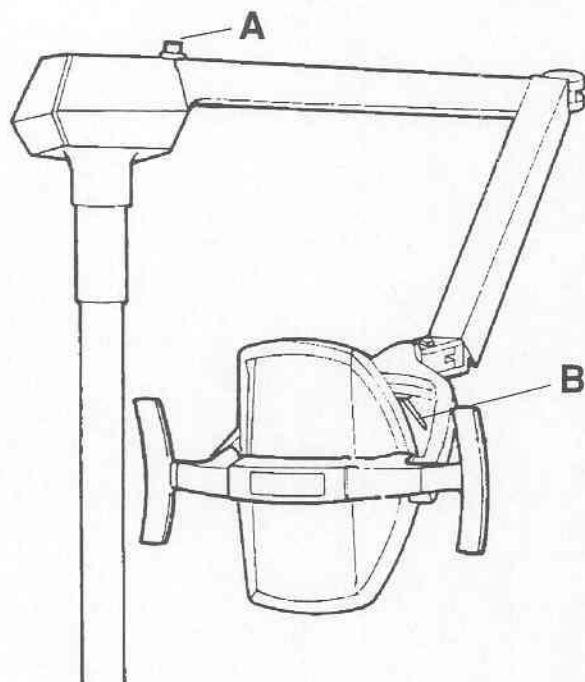
**Do not operate light unless plastic shields are in place. Shields provide protection in case of lamp explosion.**

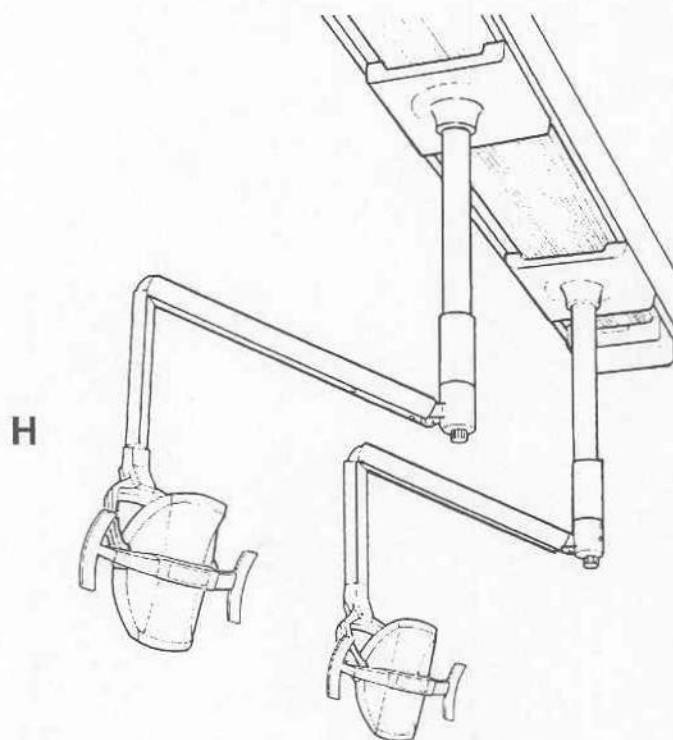
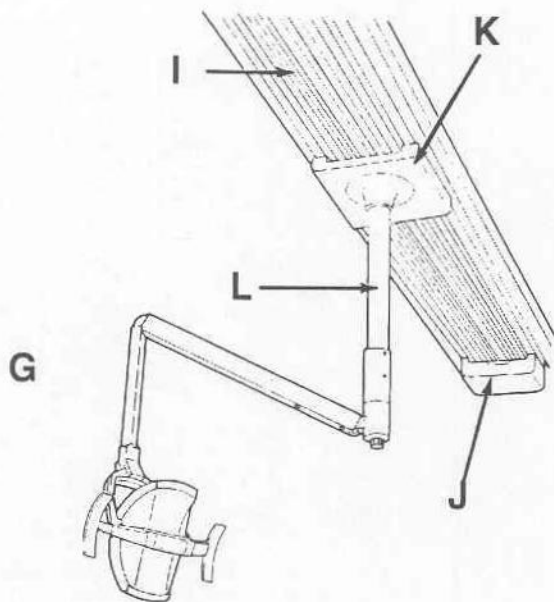
#### Reflector

The dichroic-coated reflector **E** reflects desired light and allows unwanted heat to pass through the back. The shape of the reflector collects light from a wide angle and produces a high intensity glare free pattern approximately 3" (7.6 cm) to 8" (20.3 cm) wide at distances from 18" (45.7 cm) to 36" (91.4 cm). Each part of the reflector becomes a light source which contributes to the total pattern. The large size of usable pattern requires less light head repositioning during an operation. The reflector also offers other demonstrative advantages such as greater energy efficiency, cooler light and increased lamp life.

#### Autoclavable Handles

Each light comes with two autoclavable handles **F** made of highly-durable plastic. The spring-loaded handles are easily removed and quickly replaced without the use of a tool.





## Familiarization, continued LFTII AND LFTII-D (Track and Dual Track Light)

The LFTII G and LFTII-D H track lights answer the demand for precise oral cavity lighting required for supine operative procedures. The dual track light (LFTII-D) is offered for dentists needing two intra-oral lights. One light may be placed over the head and the other in front to overcome difficult lighting conditions. Variable length columns are available to accommodate 8' (2.44 m) to 13' (3.97 m) ceiling height installations.

### Track Assembly

The track assembly I for models LFTII and LFTII-D consists of a plywood pallet, an aluminum track channel, aluminum dress covers, panels and end caps. Proper installation to ceiling substructures will ensure drift-free and vibration-free operation of the light head (see Installation Instructions 096035).

### Transformer Box

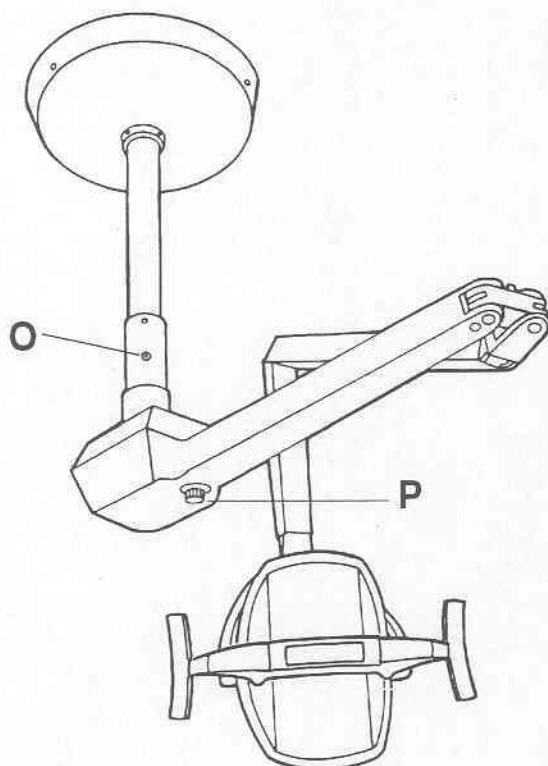
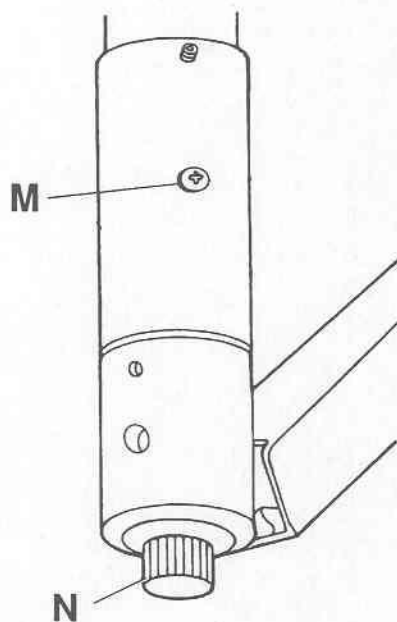
Removal of the transformer box lid J provides access to the transformer for required wiring. A fuse located on the end of the transformer box is provided for circuit protection of the light. The LFTII uses a 3AG SLOW BLOW 2 amp 125 volt fuse (Littlefuse #313002/S) and the LFTII-D uses a 3AG SLOW BLOW 4 amp 125 volt fuse (Littlefuse #313004/S).

### Trolley

The trolley K rolls freely at the touch of the hand and serves as the portable and positive mount for the light column through which the electrical wiring passes.

### Vertical Column

The column L length and associated power cable determine height of light and are the only two variable factors with different ceiling heights. If light is moved to new office with a different ceiling height, a new column and associated power cable may be purchased to easily modify the light.



## Familiarization, continued

### LFTII and LFTII-D, continued

#### Column Stop

The entire arm and light may be rotated approximately  $322^{\circ}$  with respect to the column. Location of the column stop **M** may be varied to provide optimum operating positions. For adjustment procedure, refer to the Light Fantastic Installation and Adjustment instructions, 096035.

### **CAUTION**

Do not rotate arm more than  $360^{\circ}$  with respect to the column or twisting damage to the internal wiring may result.

#### Dimmer Control

Rotation of the dimmer control **N** light intensity adjustment to be varied from approximately 1500 to 2500 footcandles.

### LFCII AND LFCII-D (Column and Dual Column Light)

#### Vertical Column

The column length and associated power cable determine height of light and are the only two variable factors with different ceiling heights. If light is moved to new office with different ceiling height, a new column and associated power cable may be purchased to easily modify the light.

#### Column Stop

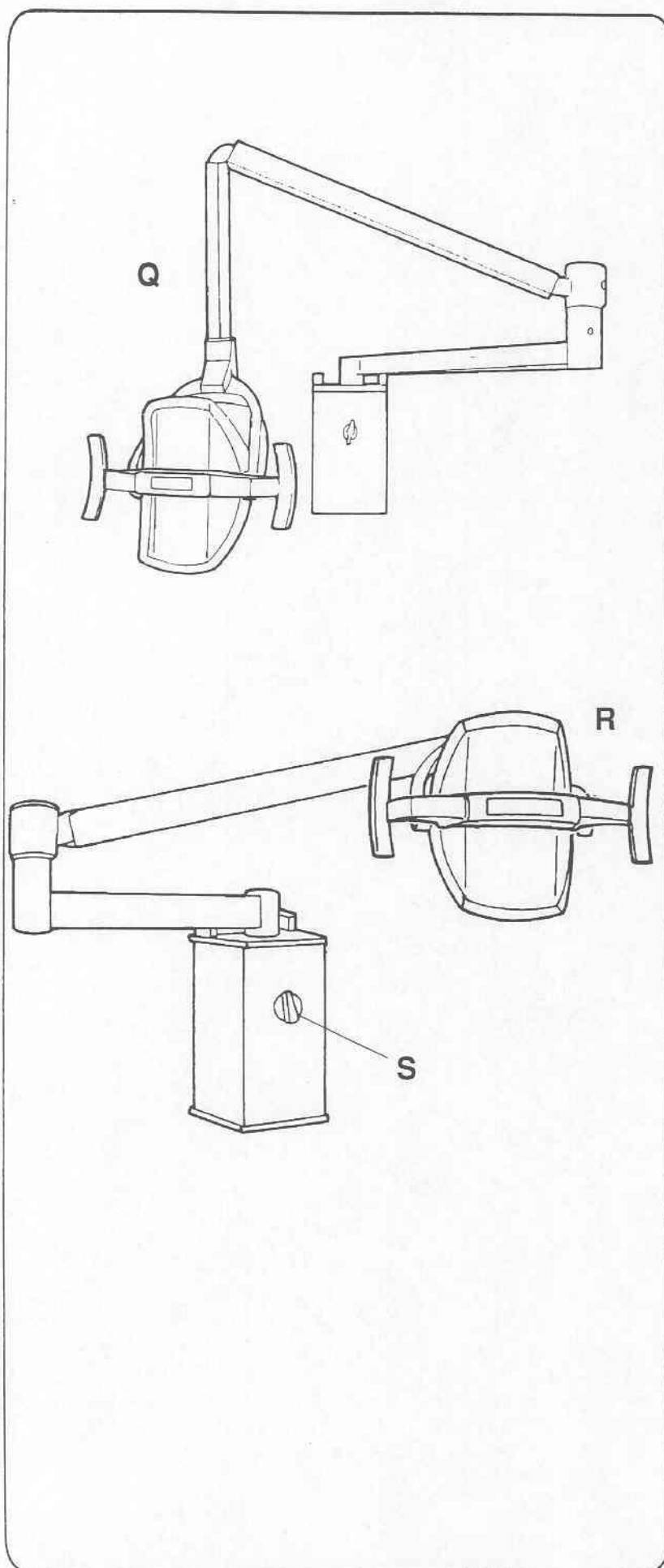
The entire arm and light may be rotated approximately  $322^{\circ}$  with respect to the column. Location of the column stop **O** may be varied to provide optimum operating positions. For adjustment procedure, refer to the Light Fantastic Installation and Adjustment instructions, 096035.

### **CAUTION**

Do not rotate arm more than  $360^{\circ}$  with respect to the column or twisting damage to the internal wiring may result.

#### Dimmer Control

The dimmer control **P** is located on back of the rear arm. It can be adjusted to three levels of intensity. The LO, MED and HI settings provide approximately 1500, 2000 and 2500 footcandles of light intensity, respectively.



## Familiarization, continued

### LFWII (Wall Light) and LFLII (Laboratory Light)

The LFWII Q and LFLII R are wall-mounted dental lights with the dimmer controls located on the mounting box.

Two models of the wall-mounted dental light (LFWII) are available. The LFWII-2 has two arms plus a down arm section at the front knuckle. It extends 59" (149.9 cm) from the mounting box to the centerline of the light head handle. The LFWII-3 has three arm sections, but no down arm section, and extends 79" (200.7 cm) from the mounting box to the centerline of the light head handle.

The wall-mounted laboratory light (LFLII) has two arms, but no down arm section, and extends 43" (109.2 cm) from the mounting box to the centerline of the light head handle.

#### Dimmer Control

The dimmer control S on the front of the mounting box can be adjusted to three levels of intensity. The LO, MED and HI settings provide approximately 1500, 2000 and 2500 footcandles of light intensity, respectively.

## 2

### OPERATION (For All Models)

Position light head approximately 18" (45.7 cm) to 36" (91.4 cm) from the oral cavity. Reposition light head as required during the operative procedure.

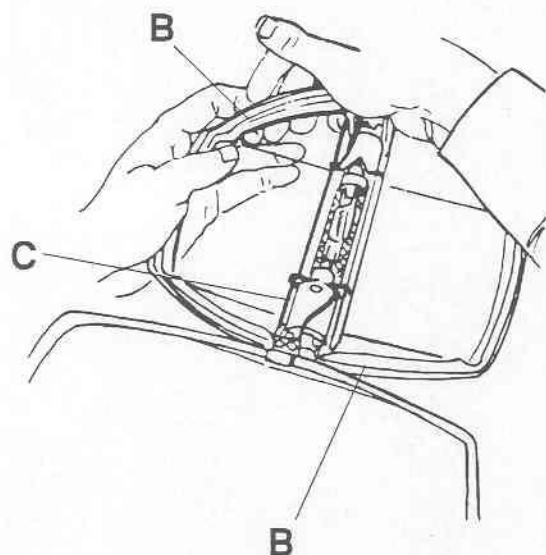
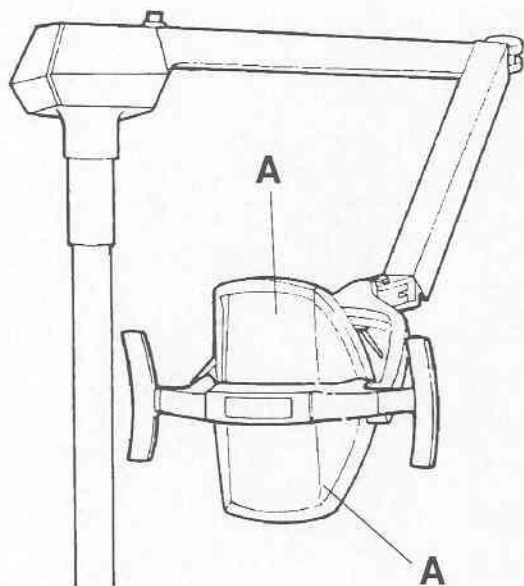
**NOTE:** The lamp focus is factory set for an optimum pattern at distances of 18" (45.7 cm) to 36" (91.4 cm). If further focusing is required, refer to page

Turn control switch ON.

Set dimmer control for desired intensity.

**NOTE:** The bulb life may be extended, in addition to conserving energy, when the dimmer control is used on the lowest setting.

Turn lamp OFF when illumination is not required. The lamp is affected only by operating time and not by turning it ON/OFF. Leave light OFF when possible for longer lamp life, less power consumption and cooler operation.



### 3

## MAINTENANCE AND ADJUSTMENT (For All Models)

### Cleaning Plastic Shields

The LF II has two plastic shields A. Both plastic shields may be removed for cleaning. To remove plastic shields, the following procedure should be performed:

### **!WARNING**

To avoid burning fingers or hand, ensure lamp is off and cool.

- Open rear of light by depressing small pin on side of light frame.
- Gently squeeze one side of plastic shield to be cleaned until edge is inside the frame retaining edge B.
- Remove by pushing plastic shield through back side of light.
- Wash the shield in a mild detergent and water, and dry with soft cloth. The plastic shield is unbreakable but may be easily scratched.
- Replace plastic shield by placing one side of plastic shield in position behind the frame retaining edge with edge of shield against retaining bosses C. Push other side straight down until shield snaps in place.

### **!WARNING**

Do not operate light unless plastic shields are in place. Shields provide protection in case of lamp explosion.



## MAINTENANCE AND ADJUSTMENT (For All Models), continued

### Cleaning Reflector

The Light Fantastic II is a precise optical instrument that when properly cared for will provide years of trouble-free operation. The front of the reflector should be cleaned no more than every six months for optimum performance. For normal cleaning, the following procedure should be performed:

### **CAUTION**

Do not use abrasives, chlorine or ammonia when cleaning reflector. Do not rub heavily. Do not clean when reflector is hot. Do not soak in cleaning solution. Do not routinely clean front of reflector at more frequent intervals than specified. Failure to comply with any of the above cautions can result in degradation of the optical coating.

- Saturate clean, soft, lint-free cloth with isopropyl alcohol.
- Wipe reflector in **lengthwise** direction only (\*), never from side to side.
- Use clean, dry cloth and wipe lightly in the **same direction** to remove all alcohol.

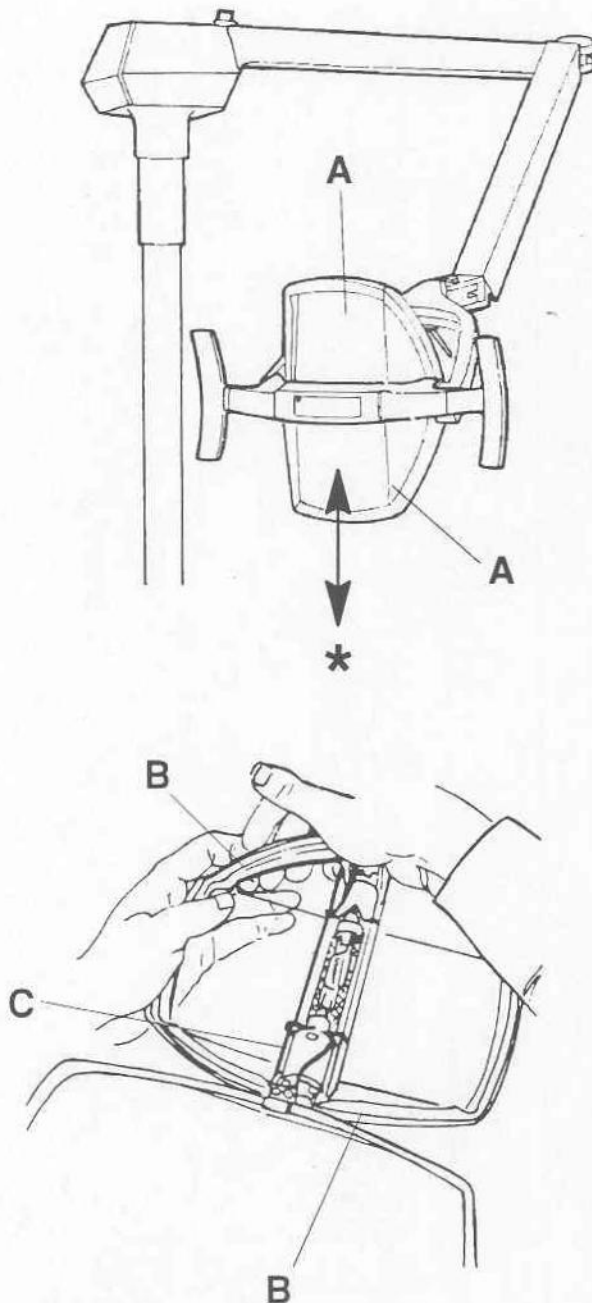
The rear surface of the reflector may be cleaned as necessary using a soft cloth dampened with a mild detergent. Take care not to permit cleaning solution to contact front surface.

### Cleaning and Sterilizing Autoclavable Handles

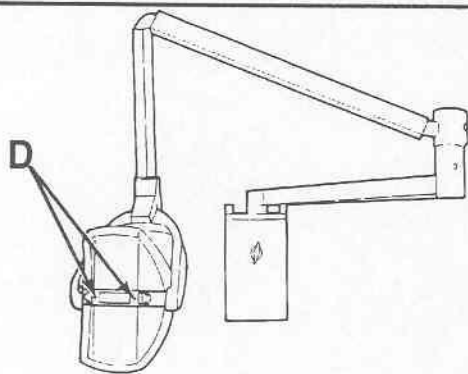
Handles may be cleaned with a soft cloth and mild detergent. Handles may be safely sterilized using the following methods; steam autoclaving, dry heat sterilization up to 320° F (160° C), ethylene oxide sterilization, gamma radiation and cold sterilization.

### **CAUTION**

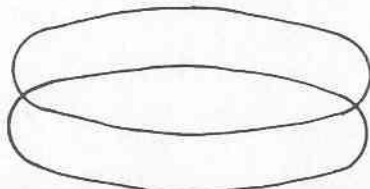
Some cold sterilants may discolor handles with use over a prolonged period of time.





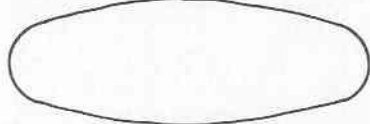


**PATTERN A**



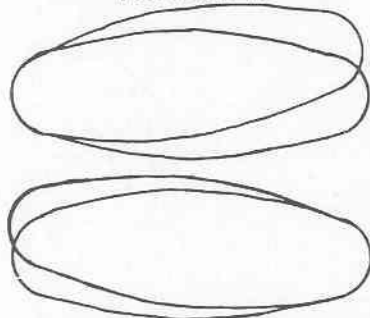
PATTERNS PARTIALLY OVERLAPPED AND ARE NOT FOCUSED FOR OPTIMUM PATTERN. THIS PATTERN WILL "SHIFT" WHEN PARTIALLY BLOCKED OUT.

**PATTERN B**

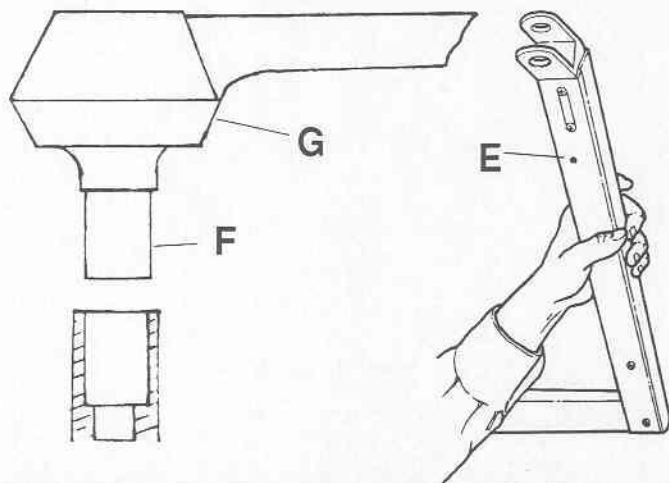


PATTERNS ARE SUPERIMPOSED FOR "OPTIMUM" PATTERN. PATTERN WILL NOT SHIFT.

**PATTERN C**



IRREGULAR PATTERNS. ONLY ONE ADJUSTING SCREW SHOULD BE TURNED.



## Maintenance and Adjustment, continued

### Focusing Lamp

To focus the lamp, the following procedure should be performed:

**NOTE:** The lamp focus is factory set for an optimum pattern 27" (68.6 cm) from the oral cavity. This results in an excellent pattern in an 18" (45.7 cm) to 36" (91.4 cm) range from the oral cavity. The lamp may also be refocused for an optimum pattern at other operating distances.

- Remove autoclavable handles to access adjustment screws D.
- Turn **two** screws D on front of light **clockwise** until both screws stop. The patterns will now be partially overlapped as shown in pattern A.
- Turn each screw **counterclockwise** equally 1-1/2 turns to focus light. The patterns will be superimposed as shown in Pattern B.
- Inspect for optimum pattern by blocking out one half of the light. If the pattern appears to shift, further adjustment is required. Otherwise, focusing of the lamp is completed.
- If patterns are irregular as shown in Pattern C, turn **only one** screw until the patterns are superimposed.

### Arm Friction Adjustment (All Models)

After initial wear-in period, some friction adjustment may be necessary.

If up-drift or down-drift occurs, tighten screw E (clockwise) with a 9/64" hex wrench through the friction adjustment hole. Only slight adjustment is required.

### LFII Unit Mount Lubrication-Bushing Lubrication

Apply thin coat of lubrication to outside of bushing surface F every 12 months. Lift light column G to apply lubrication.

## **CAUTION**

Failure to apply lubricant may cause bushing to bind in tube and unscrew itself from rear arm of light.

### Structural Inspection

A periodic inspection of the light should be made to ensure that all structural components are intact and that all fasteners are tight. Particular attention should be paid to the joints on both ends of the column used on both the track light and the ceiling mounted light. The set screws at these joints should be checked for tightness.

# 4

## Parts Replacement

### Replacing Lamp

To replace the lamp, the following procedure should be performed:

**NOTE:** For optimum performance and extended bulb life, use only Pelton & Crane bulbs (part no. 017133) identified by Pelton & Crane on the ceramic ends.

### ⚠ WARNING

To avoid burning fingers or hand, ensure lamp is off and cool.

- Open rear of light by depressing small pin on side of light frame. Rotate lamp **A** 90° so edge can be held with fingers.
- Hold lamp with left hand and press lever **B** to right side with right hand. Remove lamp by gently pulling out.

### ⚠ CAUTION

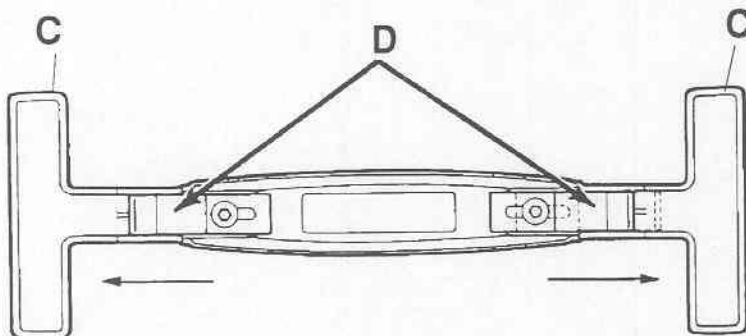
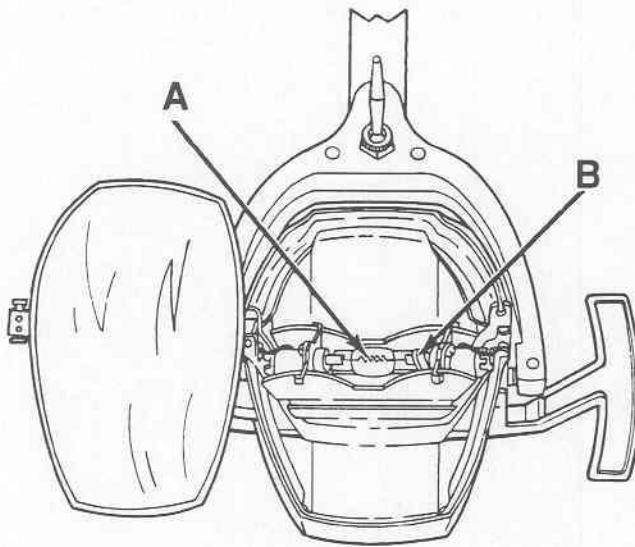
Use tissue to hold new lamp while installing. Do not touch new lamp with bare fingers. Contamination may shorten lamp life. If touched, clean with isopropyl alcohol and dry with clean cloth to remove fingerprints.

- Install replacement lamp with exhaust tip away from reflector. Close reflector.

Exchanging Autoclavable Handles: To exchange autoclavable handles **C**, the following procedure should be performed:

**NOTE:** Autoclavable handles are packaged non-sterile. Wash handles thoroughly and sterilize before using.

- Remove autoclavable handles by grasping handles on either side, placing thumbs underneath slides.
- Retract spring-loaded slides **D** by pushing thumbs outward and lift off handles.
- Grasp spare autoclavable handles **C** on either side, placing thumbs underneath slides.
- Retract spring-loaded slides **D** by pushing thumbs outward.
- Position handles over frame and release slide, locking handles into place.



## TECHNICAL DATA

Weight  
9 lbs.

Power Supply  
117V~, 15A, 50-60Hz

Mode of Operation  
(INT) Intermittent, 30 seconds ON, 3 minutes OFF

Degree of protection against electrical shock  
Type B Equipment (Class I)

Degree of protection against ingress of liquid  
Ordinary

Installation Instructions  
096035

## TABLE OF SYMBOLS



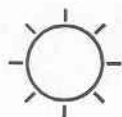
OFF/ON Power Switch



Ground



Alternating Current



Dimmer control



**HOT SURFACE**  
**HEISSE OBERFLACHE**



Type B equipment (specifies degree of protection against electric shock)



Attention: consult accompanying documents



Caution: hot surface

**NOTICE:** Supplier will make available on request circuit diagrams, component parts list, description, calibration instructions, or other information which will assist the user's appropriately qualified technical personnel to repair those parts of the equipment which are designated by the manufacturer as repairable.

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We reserve the right to make any alterations  
which may be due to technical improvements.

YL3-096037  
ISSUE 15, 5/94

# Use & Care Manual

**LIGHT FANTASTIC® II**

*Pelton & Crane*

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## LIGHT FANTASTIC II USE AND CARE MANUAL

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CONTENTS	PAGE
1.00 FAMILIARIZATION .....	1
LFII (Unit and Chair Light) .....	1
LFTII and LFTII-D (Track and Dual Track Light) ....	1
LFCII and LFCII-D (Column and Dual Column Light)	3
LFWII (Wall Light) and LFLII (Laboratory Light) ....	3
2.00 OPERATION (For all models) .....	4
3.00 MAINTENANCE AND ADJUSTMENT (For all models) .....	4



## 1.00 FAMILIARIZATION

### LFII (Unit and Chair Light)

**1.01 Dimmer Control (Figure 1)**—The dimmer control is located on back of the rear arm. It can be adjusted to three levels of intensity. The LO, Med and HI settings provide approximately 1500, 2000 and 2500 footcandles of light intensity, respectively.

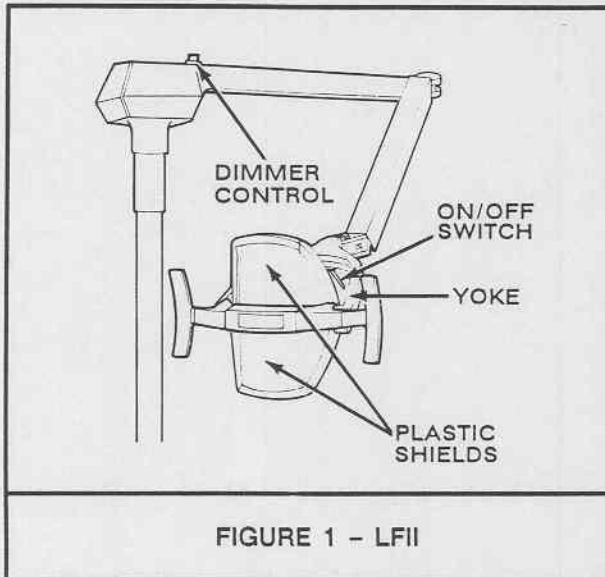


FIGURE 1 - LFII

**1.02 ON/OFF Switch (Figure 1)**—The ON/OFF switch is conveniently located behind the head and is within easy operator reach.

**1.03 Lamp (Figure 2)**—The miniature quartz halogen lamp is durable and lasts many times the life of conventional lamps. Its self-cleaning process maintains constant light intensity throughout its long life. The lamp may be replaced in seconds and requires no tool.

**1.04 Plastic Shield (Figure 2)**—The plastic shield is provided as a safety feature to prevent water spray from splashing on the glass reflector and lamp. It also retains broken glass in the unlikely event a lamp explodes.

**WARNING: DO NOT OPERATE LIGHT UNLESS PLASTIC SHIELDS ARE IN PLACE. SHIELDS PROVIDE PROTECTION IN CASE OF LAMP EXPLOSION.**

**1.05 Reflector (Figure 2)**—The dichroic coated reflector reflects desired light and allows unwanted heat to pass through the back. The shape of the reflector collects light from a wide angle and produces a high intensity glare free pattern approximately 3" (7.6 cm) to 8" (20.3 cm) wide at distances from 18" (45.7 cm) to 36"

(91.4 cm). Each part of the reflector becomes a light source which contributes to the total pattern. The large size of usable pattern requires less light head repositioning during an operation. The reflector also offers other demonstrative advantages such as greater energy efficiency, cooler light and increased lamp life.

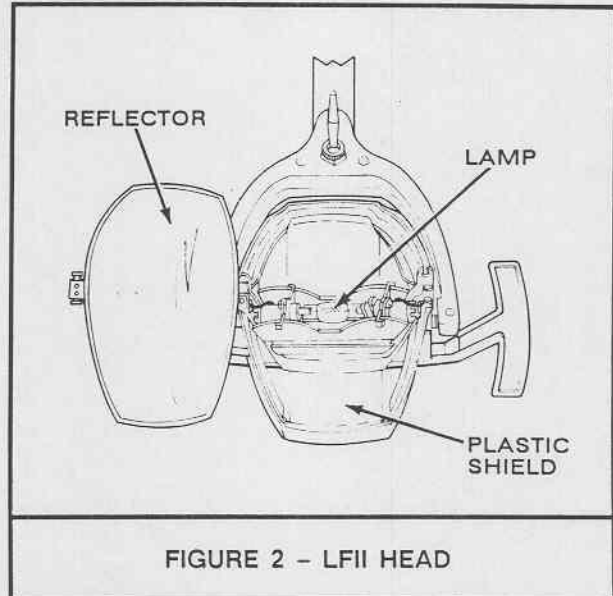


FIGURE 2 - LFII HEAD

**1.06 Autoclavable Handles (Figure 3)**—Each light is packaged with two autoclavable handles made of highly durable plastic. The handles are spring-loaded which makes them easily removed and quickly replaced without the use of a tool. The autoclavable handles were designed to increase effective asepsis in the operatory.

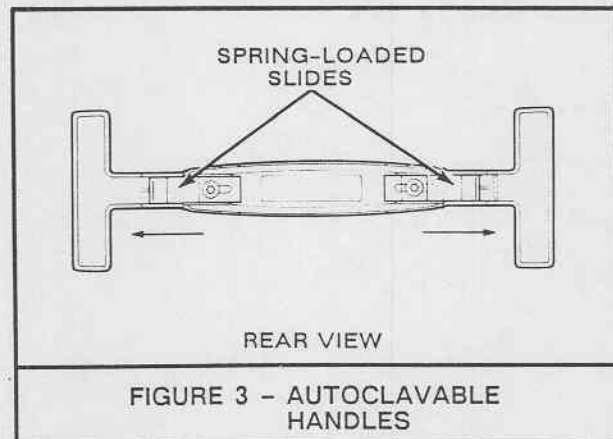


FIGURE 3 - AUTOCLAVABLE HANDLES

### LFTII AND LFTII-D (Track and Dual Track Light)

**1.07 The LFTII (Figure 4) and LFTII-D (Figure 5)** track lights answer the demand for precise oral cavity lighting required for supine operative procedures. The dual track light (LFTII-D)

is offered for dentists needing two intra-oral lights. One light may be placed over the head and the other in front to overcome difficult lighting conditions. Variable length columns are available to accommodate 8' (2.44 m) to 3' (3.97 m) ceiling height installations.

**1.08 Track Assembly (Figure 4)**—The track assembly for models LFTII and LFTII-D consists of a plywood pallet, an aluminum track channel, aluminum dress covers, panels and end caps. Proper installation to ceiling substructures will ensure drift free and vibration free operation of the light head (see Installation Instructions YL3-096035).

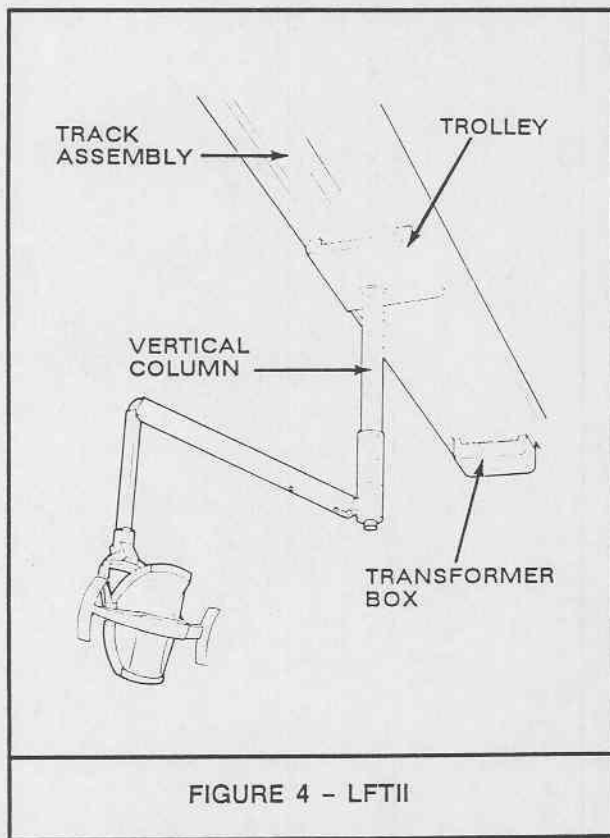


FIGURE 4 - LFTII

**1.09 Transformer Box (Figure 4)**—Removal of the transformer box lid provides access to the transformer for required wiring. A fuse located on the end of the transformer box is provided for circuit protection of the light. The LFTII uses a 3AG SLOW BLOW 2 amp 125 volt fuse (Littlefuse #313002/S) and the LFTII-D uses a 3AG SLOW BLOW 4 amp 125 volt fuse (Littlefuse #313004/S).

**1.10 Trolley (Figure 4)**—The trolley rolls freely at the touch of the hand and serves as the portable and positive mount for the light column through which the electrical wiring passes.

**1.11 Vertical Column (Figure 4)**—The column length and associated power cable determine height of light and are the only two variable factors with different ceiling heights. If light is moved to new office with a different ceiling height, a new column and associated power cable may be purchased to easily modify the light.

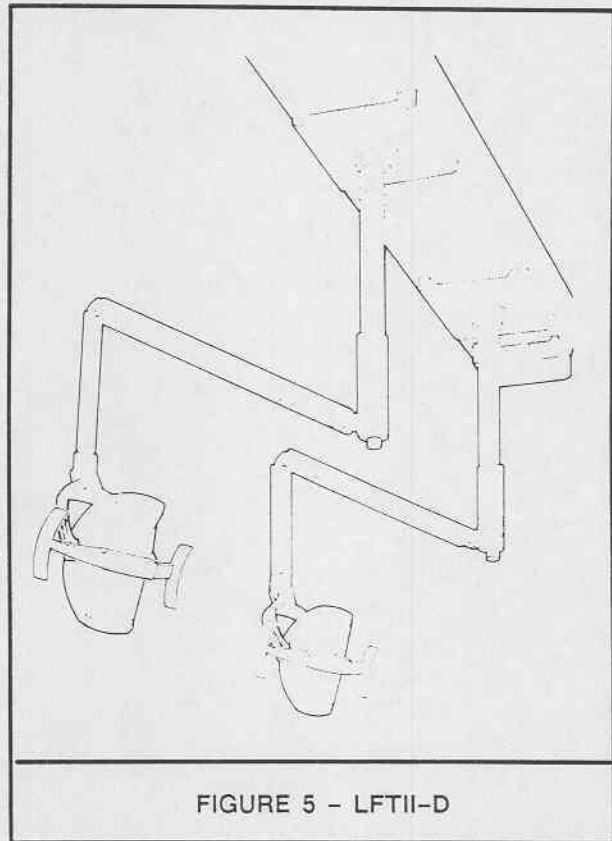


FIGURE 5 - LFTII-D

**1.12 Column Stop (Figure 6)**—The entire arm and light may be rotated approximately 322° with respect to the column. Location of the column stop may be varied to provide optimum operating positions. For adjustment procedure, refer to the Light Fantastic Installation and Adjustment instructions, YL3-096035.

**CAUTION:** DO NOT ROTATE ARM MORE THAN 360° WITH RESPECT TO THE COLUMN OR TWISTING DAMAGE TO THE INTERNAL WIRING MAY RESULT.

**1.13 Dimmer Control (Figure 6)**—Rotation of the dimmer control light intensity adjustment to be varied from approximately 1500 to 2500 footcandles.

**1.14** Refer to page 1, paragraphs 1.02 through 1.06 for familiarization of other important features of the LFTII and LFTII-D.

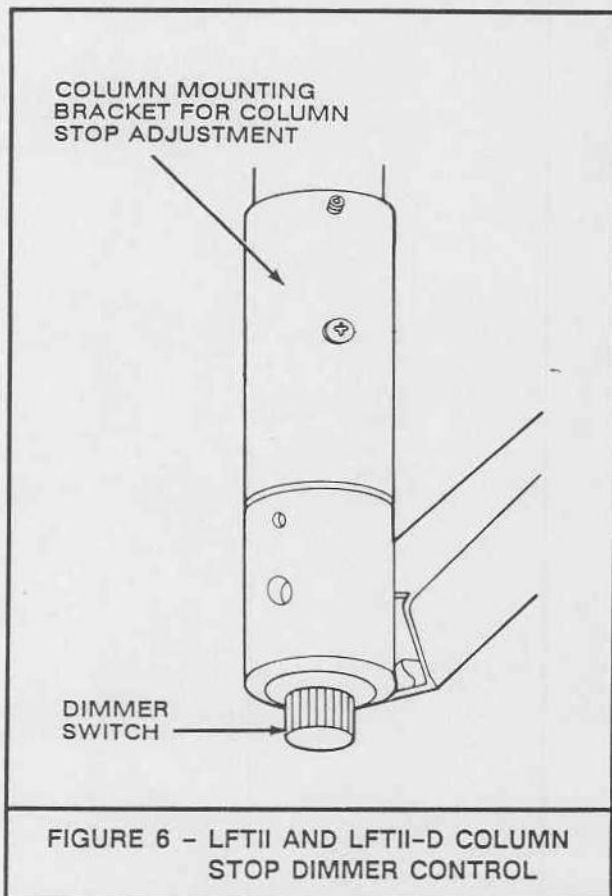


FIGURE 6 - LFTII AND LFTII-D COLUMN STOP DIMMER CONTROL

#### LFCII AND LFCII-D (Column and Dual Column Light)

**1.15 Vertical Column (Figure 7)**—The column length and associated power cable determine height of light and are the only two variable factors with different ceiling heights. If light is moved to new office with different ceiling height, a new column and associated power cable may be purchased to easily modify the light.

**1.16 Column Stop (Figure 7)**—The entire arm and light may be rotated approximately 322° with respect to the column. Location of the column stop may be varied to provide optimum operating positions. For adjustment procedure, refer to the Light Fantastic Installation and Adjustment instructions, YL3-096035.

**CAUTION: DO NOT ROTATE ARM MORE THAN 360° WITH RESPECT TO THE COLUMN OR TWISTING DAMAGE TO THE INTERNAL WIRING MAY RESULT.**

**1.17 Dimmer Control (Figure 7)**—The dimmer control is located on back of the rear arm. It can be adjusted to three levels of intensity. The LO, MED and HI settings provide approximately

1500, 2000 and 2500 footcandles of light intensity, respectively.

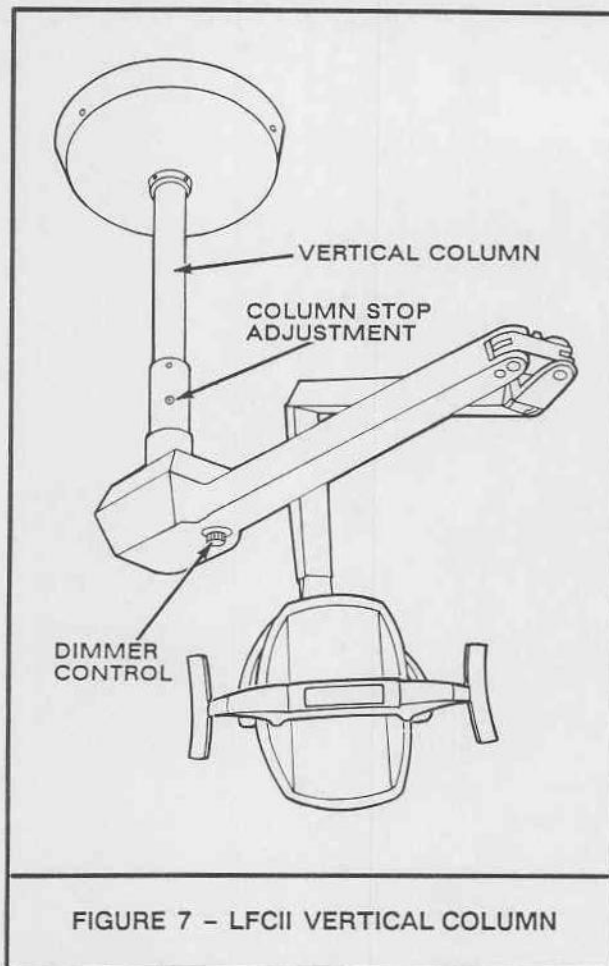


FIGURE 7 - LFCII VERTICAL COLUMN

**1.18** Refer to page 1, paragraphs 1.02 through 1.06 for familiarization of other important features of the LFCII and LFCII-D.

#### LFWII (Wall Light) and LFLII (Laboratory Light)

**1.19 The LFWII (Figure 8) and LFLII (Figure 9)** are wall mounted dental lights with the dimmer controls located on the mounting box.

**1.20** Two models of the wall mounted dental light (LFWII) are available. The LFWII-2 has two arms plus a down arm section at the front knuckle. It extends 59" (149.9 cm) from the mounting box to the centerline of the light head handle. The LFWII-3 has three arm sections, but no down arm section, and extends 79" (200.7 cm) from the mounting box to the centerline of the light head handle.

**1.21** The wall mounted laboratory light (LFLII) has two arms, but no down arm section, and extends 43" (109.2 cm) from the mounting box to the centerline of the light head handle.

**1.22 Dimmer Control (Figure 8 and Figure 9)**—The dimmer control is located on the front of the mounting box. It can be adjusted to three levels of intensity. The LO, MED and HI settings provide approximately 1500, 2000 and 2500 footcandles of light intensity, respectively.

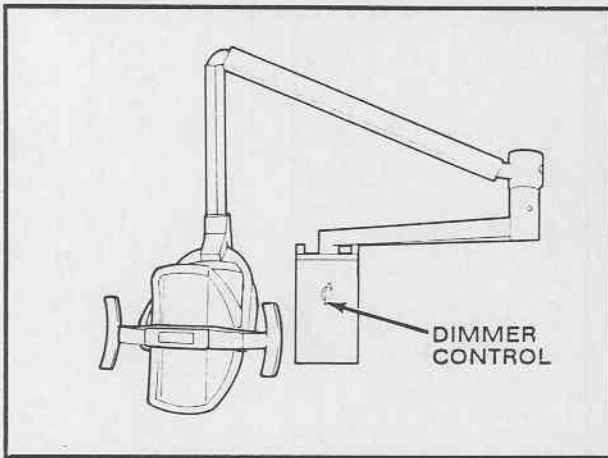


FIGURE 8 - LFWII

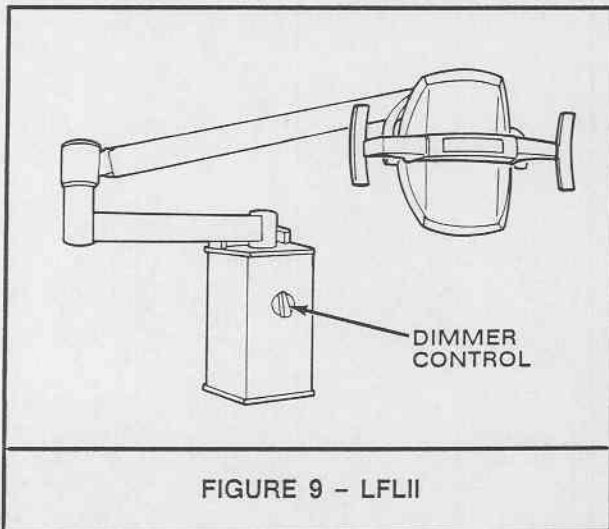


FIGURE 9 - LFLII

**1.23** Refer to page 1, paragraphs 1.02 through 1.06 for familiarization of other important features of the LFWII and LFLII.

## 2.00 OPERATION (For All Models)

**2.01** Position light head approximately 18" (45.7 cm) to 36" (91.4 cm) from the oral cavity. Reposition light head as required during the operative procedure.

**NOTE:** The lamp focus is factory set for an optimum pattern at distances of 18" (45.7 cm) to 36" (91.4 cm). If further focusing is re-

quired, refer to page 6, paragraph 3.06.

**2.02** Turn control switch ON.

**2.03** Set dimmer control for desired intensity.

**NOTE:** The bulb life may be extended, in addition to conserving energy, when the dimmer control is used on the lowest setting.

**2.04** Turn lamp OFF when illumination is not required. The lamp is affected only by operating time and not by turning it ON/OFF. Leave light OFF when possible for longer lamp life, less power consumption and cooler operation.

## 3.00 MAINTENANCE AND ADJUSTMENT (For All Models)

**3.01 Cleaning Plastic Shields**—The Light Fantastic II has two plastic shields (Figure 1). Both plastic shields may be removed for cleaning. To remove plastic shields, the following procedure should be performed:

**WARNING: TO AVOID BURNING FINGERS OR HAND, ENSURE LAMP IS OFF AND COOL.**

- Open rear of light by depressing small pin on side of light frame.
- Gently squeeze one side of plastic shield to be cleaned until edge is inside the frame retaining edge (Figure 10).
- Remove by pushing plastic shield through back side of light.
- Wash the shield in a mild detergent and water, and dry with soft cloth. The plastic shield is unbreakable but may be easily scratched.
- Replace plastic shield by placing one side of plastic shield in position behind the frame retaining edge with edge of shield against retaining bosses. Push other side straight down until shield snaps in place.

**WARNING: DO NOT OPERATE LIGHT UNLESS PLASTIC SHIELDS ARE IN PLACE. SHIELDS PROVIDE PROTECTION IN CASE OF LAMP EXPLOSION.**

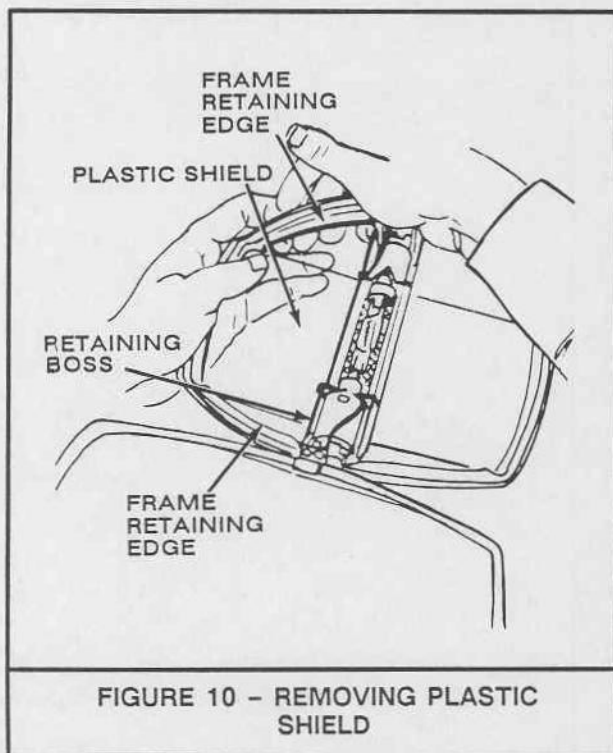
**3.02 Cleaning Reflector**—The Light Fantastic II is a precise optical instrument that when properly cared for will provide years of trouble-free operation. The front of the reflector should be cleaned no more than every six months for optimum performance. For normal cleaning, the following procedure should be performed:



**CAUTION:** DO NOT USE ABRASIVES, CHLORINE OR AMMONIA WHEN CLEANING REFLECTOR. DO NOT RUB HEAVILY. DO NOT CLEAN WHEN REFLECTOR IS HOT. DO NOT SOAK IN CLEANING SOLUTION. DO NOT ROUTINELY CLEAN FRONT OF REFLECTOR AT MORE FREQUENT INTERVALS THAN SPECIFIED. FAILURE TO COMPLY WITH ANY OF THE ABOVE CAUTIONS CAN RESULT IN DEGRADATION OF THE OPTICAL COATING.

- Saturate clean, soft, lint-free cloth with isopropyl alcohol.
- Wipe reflector in **one** direction only.
- Use clean, dry cloth and wipe lightly in the **same direction** to remove all alcohol.

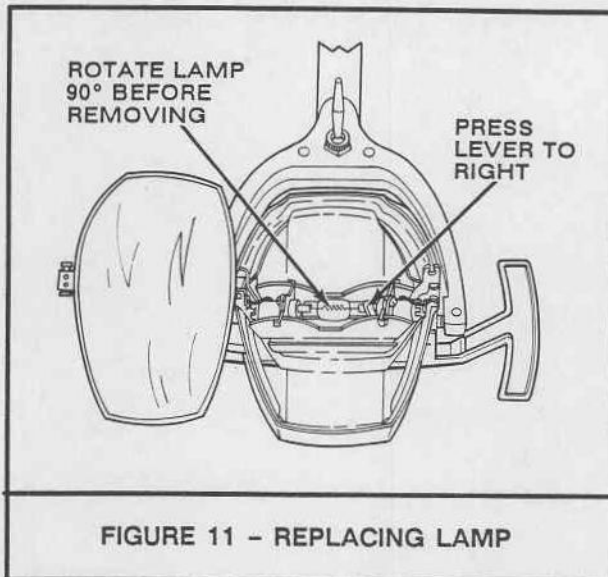
For stubborn stains, clean the reflector using Pelton & Crane reflector cleaning kit (part no. 017134). Use same procedure for cleaning as previously outlined.



**FIGURE 10 - REMOVING PLASTIC SHIELD**

The rear surface of the reflector may be cleaned as necessary using a soft cloth dampened with a mild detergent. Take care not to permit cleaning solution to contact front surface.

**3.03 Replacing Lamp (Figure 11)**—To replace the lamp, the following procedure should be performed:



**FIGURE 11 - REPLACING LAMP**

**NOTE:** For optimum performance and extended bulb life, use only Pelton & Crane bulbs (part no. 017133) identified by Pelton & Crane on the ceramic ends.

**WARNING:** TO AVOID BURNING FINGERS OR HAND, ENSURE LAMP IS OFF AND COOL.

- Open rear of light by depressing small pin on side of light frame. Rotate lamp 90° so edge can be held with fingers.
- Hold lamp with left hand and press lever to right side with right hand. Remove lamp by gently pulling out.

**CAUTION:** USE TISSUE TO HOLD NEW LAMP WHILE INSTALLING. DO NOT TOUCH NEW LAMP WITH BARE FINGERS. CONTAMINATION MAY SHORTEN LAMP LIFE. IF TOUCHED, CLEAN WITH ISOPROPYL ALCOHOL AND DRY WITH CLEAN CLOTH TO REMOVE FINGERPRINTS.

- Install replacement lamp with exhaust tip away from reflector. Close reflector.

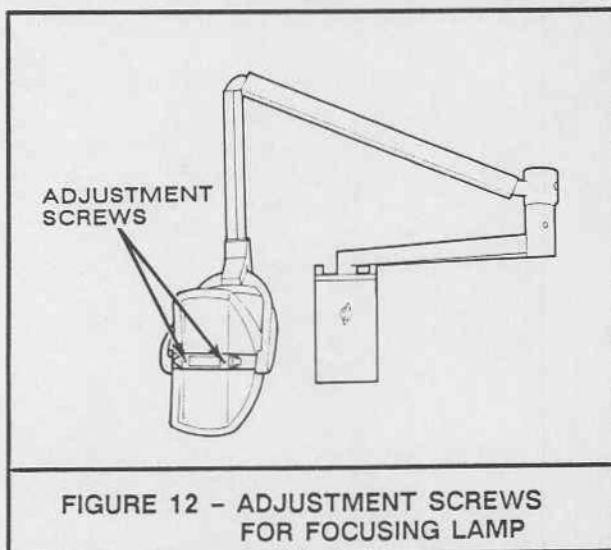
**3.04 Exchanging Autoclavable Handles (Figure 3)** To exchange autoclavable handles, the following procedure should be performed:

**NOTE:** Autoclavable handles are packaged non-sterile. Wash handles thoroughly and sterilize before using.

- Remove autoclavable handles by grasping handles on either side, placing thumbs underneath slides.
- Retract spring-loaded slides by pushing thumbs outward and lift off handles.
- Grasp spare autoclavable handles on either side, placing thumbs underneath slides.
- Retract spring-loaded slides by pushing thumbs outward.
- Position handles over frame and release slide, locking handles into place.

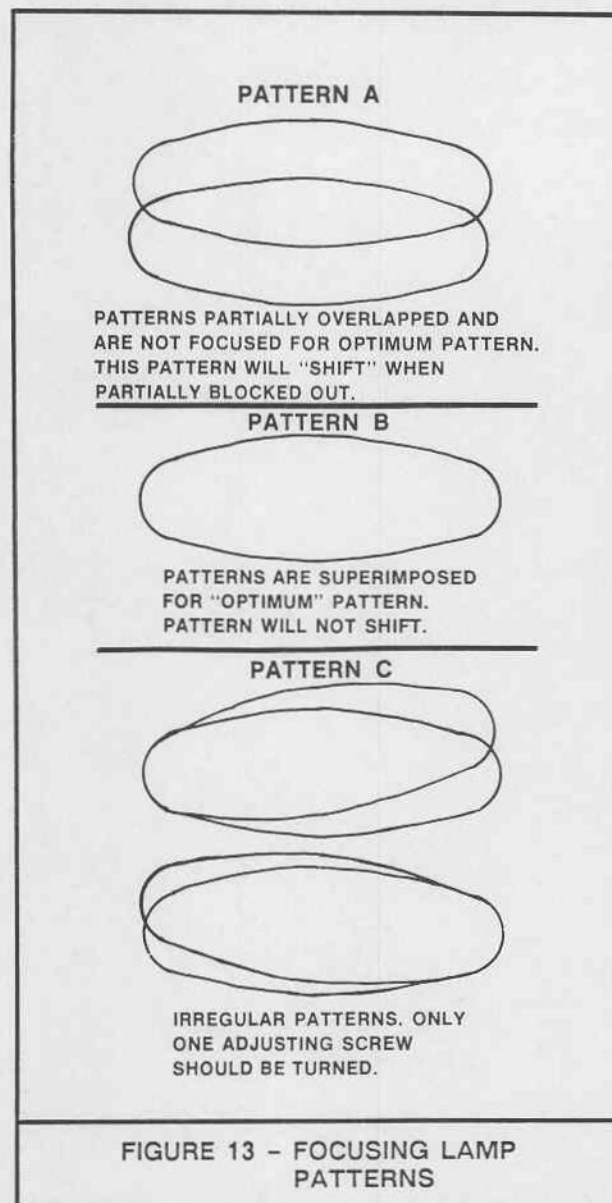
**3.05 Cleaning and Sterilizing Autoclavable Handles**—Handles may be cleaned with a soft cloth and mild detergent. Handles may be safely sterilized using the following methods; steam autoclaving, dry heat sterilization up to 320° F (160° C), ethylene oxide sterilization, gamma radiation and cold sterilization.

**CAUTION: SOME COLD STERILANTS MAY DISCOLOR HANDLES WITH USE OVER A PROLONGED PERIOD OF TIME.**



**3.06 Focusing Lamp (Figure 12)**—To focus the lamp, the following procedure should be performed:

**NOTE:** The lamp focus is factory set for an optimum pattern 27" (68.6 cm) from the oral cavity. This results in an excellent pattern in an 18" (45.7 cm) to 36" (91.4 cm) range from the oral cavity. The lamp may also be refocused for an optimum pattern at other operating distances.



- Remove autoclavable handles to access adjustment screws.
- Turn **two** screws on front of light **clockwise** until both screws are tight. The patterns will now be partially overlapped as shown in pattern A in Figure 13.
- Turn each screw **counterclockwise** equally one turn at a time until the patterns are superimposed as shown in Pattern B in Figure 13.
- Inspect for optimum pattern by blocking out one half of the light. If the pattern appears to shift, further adjustment is required. Otherwise, focusing of the lamp is completed.



- If patterns are irregular as shown in Pattern C in Figure 13, turn **only one screw** until the patterns are superimposed.

**3.07 Gas Spring**—The gas spring cylinder requires **no** lubrication.

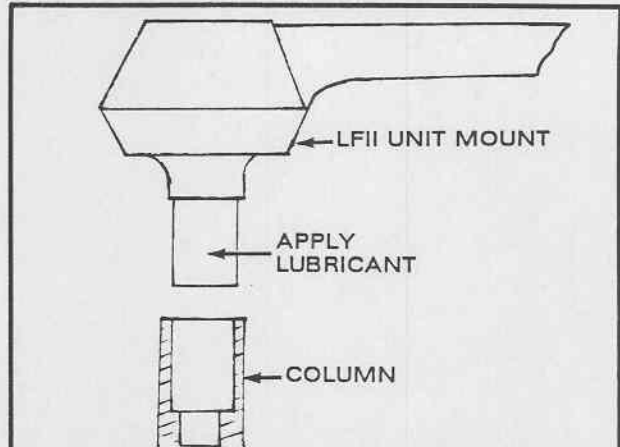
**CAUTION:** SOME COMMONLY USED LUBRICANTS MAY DAMAGE THE SPRING SEALS, ALLOWING THE GAS INSIDE THE CYLINDER TO ESCAPE.

**3.08 LFII Unit Mount Lubrication**—Bushing lubrication: Apply thin coat of lubrication to outside of bushing surface every 12 months. Lift light column to apply lubrication.

**CAUTION:** FAILURE TO APPLY LUBRICANT MAY CAUSE BUSHING TO BIND IN TUBE AND UNSCREW ITSELF FROM REAR ARM OF LIGHT.

**3.09 Structural Inspection**—A periodic inspection of the light should be made to ensure

that all structural components are intact and that all fasteners are tight. Particular attention should be paid to the joints on both ends of the column used on both the track light and the ceiling mounted light. The set screws at these joints should be checked for tightness.



**FIGURE 14 - LFII MOUNT LUBRICATION**



# **LIGHT FANTASTIC® II**

## **SERVICE MANUAL**

**FOR MODELS  
LF II, LFT II, LFT II-D,  
LFC II, LFC II-D, LFW II, LFL II**

**PELTON & CRANE**

A Siemens Company

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## TABLE OF CONTENTS

<b>Section 1 – Operating Capabilities .....</b>	<b>1</b>
I. Light Pattern .....	1
II. Reflector .....	1
III. Lamp .....	1
IV. Drift Free Arm .....	1
<b>Section 2 – Troubleshooting Procedures .....</b>	<b>2</b>
<b>Section 3 – General Service Information .....</b>	<b>5</b>
I. Trace Voltage on Track Light .....	5
II. Trace Voltage on All Other Models .....	6
III. Test Transformer .....	6
IV. Test Phase Control Dimmer Circuit .....	6
V. Focus Light .....	6
VI. Replace Arm Spring in Unit Mount Light .....	7
VII. Replace Arm Spring in Column Mount Light .....	11
VIII. Replace Arm Spring in Track Mount Light .....	12
IX. Replace Arm Spring in Wall Mount Light .....	13
X. Friction Adjustment (All Models) .....	13
XI. Replace Front Arm (All Models) .....	13
<b>Section 4 – Wiring Diagrams .....</b>	<b>15</b>
I. LFTII Track Light .....	15
II. LFTII-D Dual Track Light .....	16
III. LFCII Column Light .....	16
IV. LFCII-D Dual Column Light .....	17
V. LFII Unit Light, LFLII Lab Light, LFWII (2) and LFWII (3) Wall Light .....	18

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## SECTION 1 – OPERATING CAPABILITIES

### I. LIGHT PATTERN

The Light Fantastic II light pattern is 3" (7.6 cm) high x 8" (20.3 cm) wide, and is factory focused at 27" (68.6 cm) with an excellent pattern range between 18" (45.7 cm) and 36" (91.4 cm). The light can be refocused as desired. The pattern shape remains constant throughout the range of operating distances, with no pattern separation. The correlated color temperature is between 3600° K and 4300° K.

### II. REFLECTOR

The back surface coating, which diffuses light emitting from the back of the reflector, is a ceramic material (frit) fused into the glass and will not peel. The dichroic coating on the front surface reflects visible energy (light), but allows infrared

and ultraviolet energy to pass through. This coating also controls color of light.

### III. LAMP

A bulb life of 8000 hours is average expectation for this quartz-halogen type lamp. Intensity range is from 1500 FC for low setting, to 2500 FC for high setting at 120 VAC or 240 VAC (primary), as applicable for model.

### IV. DRIFT-FREE ARM

A heavy-duty mechanical spring with adjustable friction provides reliable and safe drift-free arm movement.

In earlier models, a gas spring provided arm movement.

## SECTION 2 - TROUBLESHOOTING PROCEDURES

Table 2-1. TROUBLESHOOTING PROCEDURES

SYMPTOM	TROUBLE	REMEDY
Light will not operate.	Switch is off.	Turn switch on.
	Lamp burned out. Resistance of lamp should be 0.3 ohms. Solid black coating on inside of lamp or broken filament are indicative of lamp failure.	Replace lamp.
	Lamp not seated correctly on contacts.	Seat lamp. Rotate lamp back and forth to ensure correct seating.
	Fuse blown. (Track light only.)	Replace fuse.
	Power not available.	Provide power. Refer to Section 3-I or 3-II.
	Transformer failure.	Replace transformer. Refer to Section 3-III.
	Phase control dimmer circuit failure.	Replace phase control dimmer circuit. Refer to Section 3-IV.
Reflector clamp will not snap closed.	Dimmer failure. Short circuit blue wire and orange wire. If light comes on, dimmer is defective.	Replace dimmer.
	Broken wire or loose connection.	Replace broken wire or improve connection. Refer to Section 3-I or 3-II.
	Not pushing hard enough.	Push with thumb while gripping frame with fingers.
	Needs oiling.	Lightly oil release pin.



Table 2-1. (Cont.)

SYMPTOM	TROUBLE	REMEDY
Light too dim.	Dimmer switch on low setting. Dirty reflector and/or shield.  Lamp turning dark. Voltage too low.	Turn switch to higher setting. Clean reflector and shield (Reflector Cleaning Kit no. 017134.) Replace lamp. Check voltage. Refer to Section 3-I or 3-II.
Light too bright.	Dimmer switch on high setting. Voltage too high.	Turn switch to lower setting. Check voltage. Refer to Section 3-I or 3-II.
Lamp life too short.	Cheaper and/or inferior lamps on market.  Voltage too high.	Use only Pelton & Crane lamps, Q150T4/CL/PC/25V.  Check voltage. Refer to Section 3-I or 3-II.
Light blinks.	Corroded contacts.  Broken or frayed wire.	Clean contacts with sandpaper.  Replace wire. Refer to Section 3-VI.
Unsatisfactory light pattern.	Out of focus.  Exhaust tip on lamp pointing toward reflector.	Focus light. Refer to Section 3-V.  Turn lamp so exhaust tip points away from reflector.
Light pattern not "square" with patient's mouth.	Mounting post not plumb.  Yoke bent.	Plumb mounting post.  Straighten or replace yoke.
Head drifts in yoke.	Pivot bushings loose.	Tighten pivot bushings. Refer to Installation and Adjustment Instructions, YL3-096035, paragraphs 2.19 through 2.24.
Front arm with gas spring drifts up.	Excessive force on gas spring.	Using a standard t-handle hex wrench or Pelton & Crane tool (016749), reduce force by turning counterclockwise. Refer to Installation and Adjustment Instructions, YL3-096035, Issue 13, paragraphs 2.25 through 2.33, or Issue 14, paragraphs 10.07 through 10.08.  <b>Caution: Some commonly-used lubricants may damage the spring seals allowing the gas inside the cylinder to escape.</b>

Table 2-1. (Cont.)

SYMPTOM	TROUBLE	REMEDY
Front arm with <b>gas spring</b> drifts down.	Insufficient force on gas spring.	Using a standard t-handle hex wrench or Pelton & Crane tool (016749), increase force by turning clockwise. Refer to Installation and Adjustment Instructions, YL3-096035, Issue 13, paragraphs 2.25 through 2.33, or Issue 14, paragraphs 10.07 through 10.08.  <b>Caution:</b> Some commonly-used lubricants may damage the spring seals allowing the gas inside the cylinder to escape.
	Gas spring defective.	Replace arm spring. Refer to Section 3-VI.  <b>NOTE:</b> A mechanical spring has been designed to be a replacement part for a defective gas spring.
Friction joints constantly need tightening. (Models with <b>mechanical spring</b> only)	Mounting post not plumb.	Plumb mounting post.
	Loose set screws at joints.	Tighten set screws. Refer to Installation and Adjustment Instructions, YL3-096035, Section 2.
Front arm with <b>mechanical spring</b> drifts up or down.	Insufficient friction in arm system.	Using a 9/64" hex wrench, increase friction by turning adjustment screw clockwise. Do not overtighten. See Section X, Figure 26.
Arm drifts to side.	Mounting post not plumb.	Plumb mounting post.
	Loose snubbing pins or friction joints.	Tighten pins and joints. Refer to Installation and Adjustment Instructions, YL3-096035, Section 2.

## SECTION 3 – GENERAL SERVICE INFORMATION

### I. TRACE VOLTAGE ON TRACK LIGHT (systematically troubleshoot if track light will not come on.)

- A. Remove transformer cover. Measure voltage across terminals marked "C" and "H". (Refer to appropriate wiring diagram in Section 4.) Line voltage of 120 VAC or 240 VAC, as applicable for model, should be present. If not present, proceed to Section 3-I-B. If 120 VAC is present, proceed to Section 3-I-C.

**WARNING:** Line voltage (120 VAC or 240 VAC, as applicable for model) is present on exposed wiring.

- B. Measure voltage between incoming power lines (black and white wires) at wire nuts. If voltage is present, fuse is blown. If voltage is not present, the problem is external to the light. Check circuit breakers.

- C. Measure voltage across secondary terminals marked "0" and "25". If not 25 VAC (light burning) or 27 VAC (light not burning), transformer is bad. If voltage is present, proceed to Section 3-I-D.

- D. Remove wire nuts at points 1 and 2 (located inside post knuckle). (Refer to appropriate wiring diagram in Section 4.) Attach a 4 ohm, 200 watt (or larger) resistor between yellow wires 1 and 2 and measure 25 VAC. If voltage is present, proceed to Section 3-I-F. If voltage is not present, short orange and blue wires together. If 25 VAC is present at 1 and 2 with wires shorted, dimmer is defective and should be replaced. If 25 VAC is not present, proceed to Section 3-I-E.

**NOTE:** If column has roll pin already installed, roll pin must be removed before disassembling.

**WARNING:** Disconnect electrical power supply while disassembling. Failure to disconnect electrical power may result in electrical shock.

- E. Use 1/8" pin punch to drive roll pin inside column.
- F. Remove light from column by removing set screw and stop screw, and unscrew arm mounting collar counterclockwise as viewed from below (Figure 1). Pull phase control out of column. If roll pin was driven into column, locate and discard it. Disconnect Mate-n-Lok® connector and measure voltage at pins 3 and 4. If 27 VAC is present, phase control is defective

and should be replaced. If 27 VAC is not present, wires are broken or connector is loose between transformer and bottom of column. Check and replace as necessary. After completing checks, reinstall light on column.

**NOTE:** When reinstalling column or column adapter, realign hole and replace roll pin. If realignment is not possible, redrill hole. Always use a new roll pin to ensure safe installation.

- G. Order Light Fantastic® Column Installation Instructions (with roll pin), kit no. 025182.

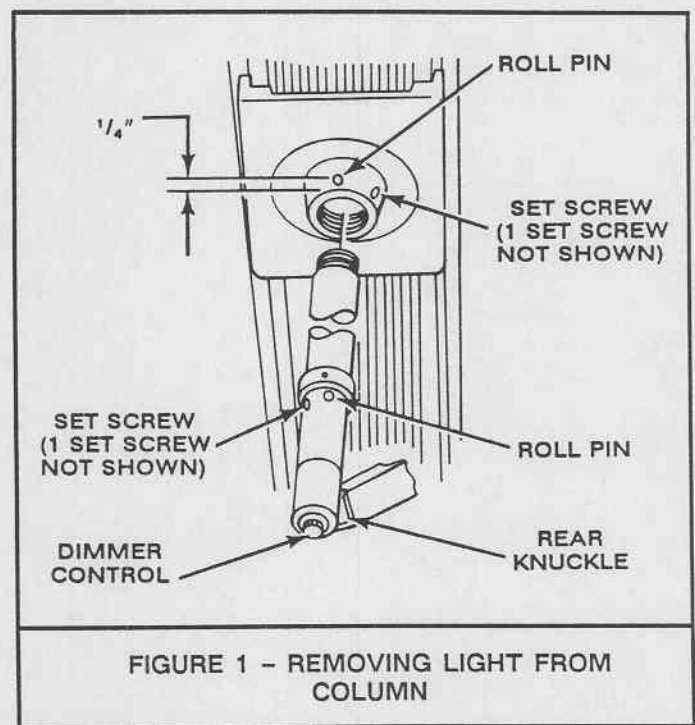


FIGURE 1 – REMOVING LIGHT FROM COLUMN

- H. Remove resistor and reattach yellow wires to black wires. Remove yoke cap and measure 27 VAC across points 5 and 6. If no voltage is present, wire in front arm is broken and (both) should be replaced. If 27 VAC is present, proceed to Section 3-I-I.

- I. Measure voltage between points 5 and 7. If no voltage is present, ON/OFF switch is defective and should be replaced. If 27 VAC is present, proceed to Section 3-I-J.

- J. Remove lamp. Measure voltage across socket contacts. If 27 VAC is present, lamp is defective or contacts are corroded, and should be replaced or cleaned. If no voltage is present, proceed to Section 3-I-K.

- K. Wire from socket is broken. Replace both sockets.

II. TRACE VOLTAGE ON ALL OTHER MODELS (systematically troubleshoot if light will not come on.)

- A. Measure voltage between points 1 and 2. (Refer to appropriate wiring diagram, Section 4.) If voltage (25/23/21/19 VAC) is present, proceed with Section 3-II-B. If no voltage is present, proceed to Section 3-II-F.
- B. For LFLII, LFWII (2), LFWII (3) only: Measure for (25/23/21/19 VAC) between points 3 and 4 (located inside post knuckle). If voltage is present, proceed to Section 3-II-C. If no voltage is present, wires between 1/2/3/4 are broken and should be replaced.
- C. Measure (25/23/21/19 VAC) between points 5 and 6. If voltage is present, proceed to Section 3-II-D. If no voltage is present, wires in front arm are broken and should be replaced.
- D. Measure (25/23/21/19 VAC) between points 6 and 7. If voltage is present, proceed to Section 3-II-E. If no voltage is present, switch is defective and should be replaced.
- E. Measure (25/23/21/19 VAC) between points 8 and 9. If voltage is present, lamp is defective or contacts are corroded and should be replaced or cleaned. If no voltage is present, socket or socket wires are defective. Replace both sockets.
- F. Measure 120 VAC between points 10 and 11. If voltage is present, proceed to 3-II-G. If no voltage is present, proceed to 3-II-H.
- G. Remove transformer and switch. Check continuity between L and 1, L and 2, and L and 3 with switch turned to H, M, L of **disconnected** switch. Continuity proves switch is good and indicates transformer is defective, or switch is defective and transformer is good. Measure resistance between terminals 1 and 2 (with transformer **disconnected**), which should be approximately 0.1 ohms. Infinite ohms indicate bad transformer. Measure resistance between white and red lead of **disconnected** transformer, which should be approximately 1 ohm. Infinite ohms indicate a bad transformer.
- H. For LFLI, LFLII, LFWII (2) and LFWII (3), a power problem exists which is external to the light. (Check circuit breakers.) For LFCII or LFCII-D, the problem could also be in wiring through column. Measure voltage between points 12 and 13. If 120 VAC is present, the problem is in the wiring in column. If no voltage

is present, the problem is external to light. (Check circuit breakers.)

III. TEST TRANSFORMER

A. Track Light

Remove transformer cover. Measure voltage across terminals marked "C" and "H". (Refer to appropriate wiring diagram in Section 4.) Voltage should be 120 VAC. Measure voltage across secondary terminals marked "0" and "25". Voltage should read 25 VAC (light burning) or 27 (light not burning).

B. Other Models

Remove transformer and switch. Check continuity between L and 1, L and 2, and L and 3 with switch turned to H, M, L of **disconnected** switch. Continuity proves either switch or transformer is defective. Measure resistance between terminals 1 and 2 (with transformer **disconnected**) which should be 0.1 ohms. Infinite ohms indicate defective transformer. Measure resistance between white and red lead of **disconnected** transformer, which should be 1 ohm. Infinite ohms indicate defective transformer.

IV. TEST PHASE CONTROL DIMMER CIRCUIT

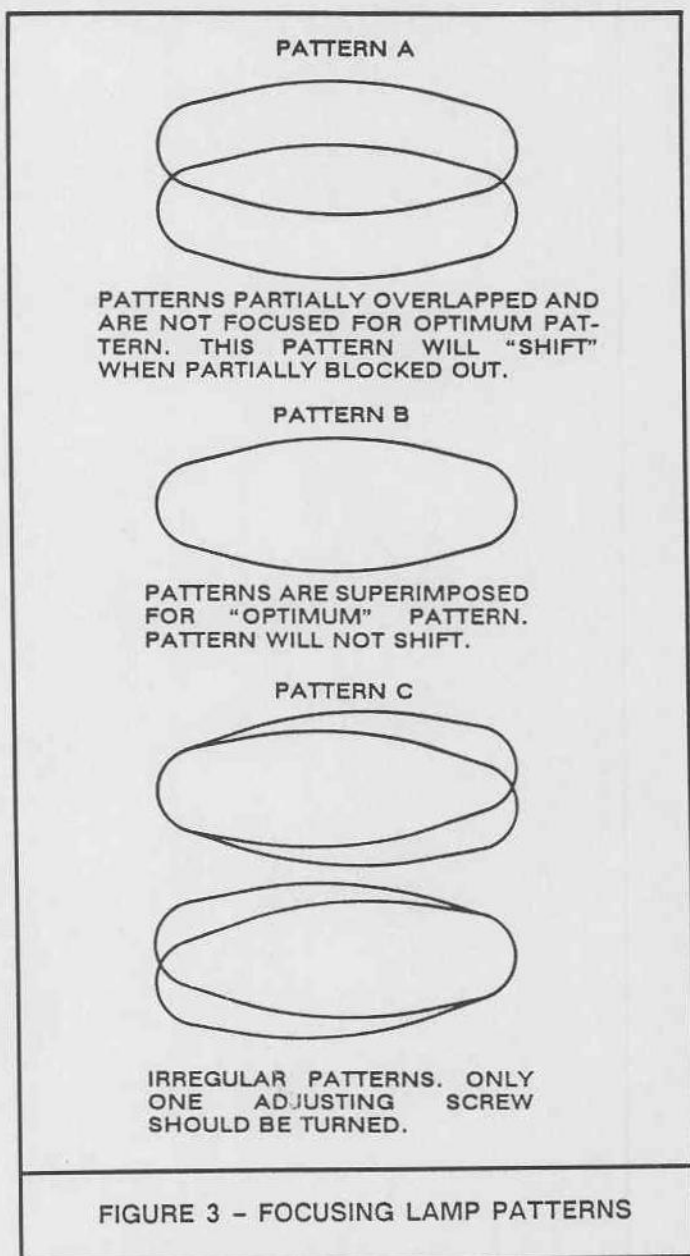
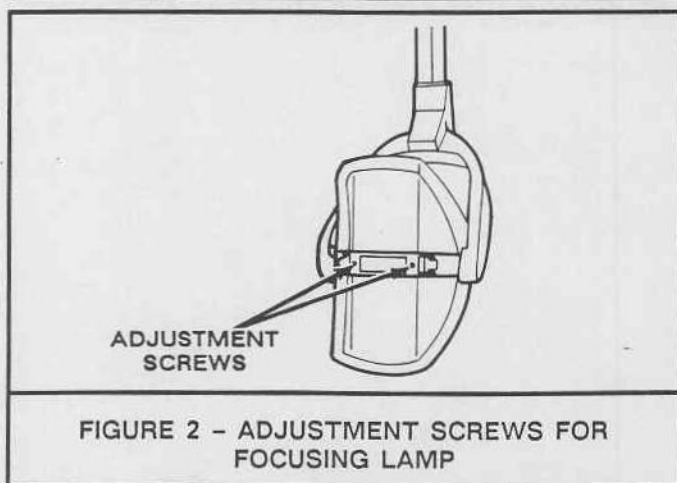
- A. Remove wire nuts from points 1 and 2 located in post knuckle. (Refer to appropriate wiring diagram in Section 4.) Attach a 4 ohm, 200 watt (or larger) resistor between yellow wires 1 and 2 and measure 25 VAC. If voltage is not present, short orange and blue wires together. If 25 VAC is present with wires shorted, potentiometer is defective. If 25 VAC is not present either way, and power is available at the transformer, secondary phase control dimmer circuit is defective. Phase control may be bypassed by attaching black wire at point 3 to yellow wire at point 1.

V. FOCUS LIGHT

NOTE: The lamp focus is factory set for an optimum pattern 27" (68.6 cm) from the oral cavity. This results in an excellent pattern in an 18" (45.7 cm) to 36" (91.4 cm) range from the oral cavity. The lamp may be refocused for an optimum pattern at other operating distances.

- A. Turn two screws on front of light (Figure 2) clockwise until both screws are tight. The patterns will now be partially overlapped as shown in Pattern A, Figure 3.
- B. Turn each screw counterclockwise equally one turn at a time until the patterns are superimposed as shown in Pattern B, Figure 3.





C. Inspect for optimum pattern by blocking out one half of the light. If the pattern shifts, further adjustment is required. Otherwise, focusing of the lamp is completed.

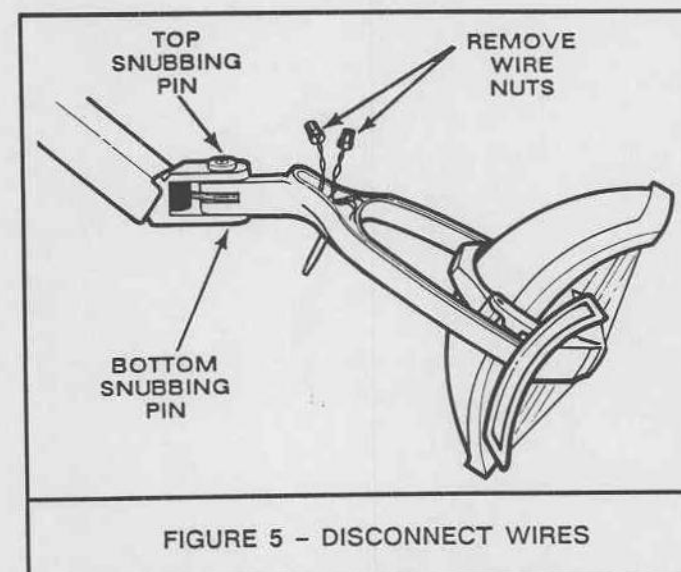
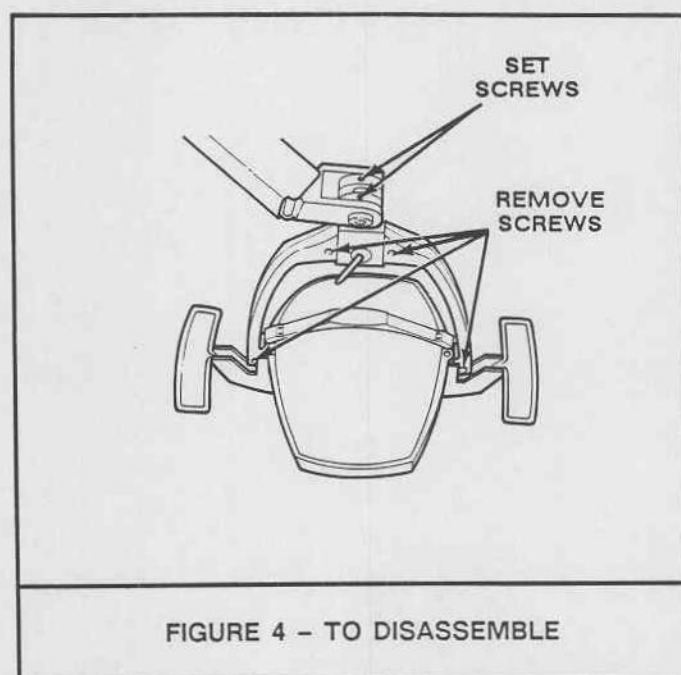
D. If patterns are irregular as shown in Pattern C, Figure 3, turn only one screw until the patterns are superimposed.

#### VI. REPLACE ARM SPRING IN UNIT MOUNT LIGHT

**NOTE:** A mechanical spring has been designed to be a replacement part for a defective gas spring.

A. Disconnect all power to light.

B. Disassemble light yoke by removing four screws (Figure 4).

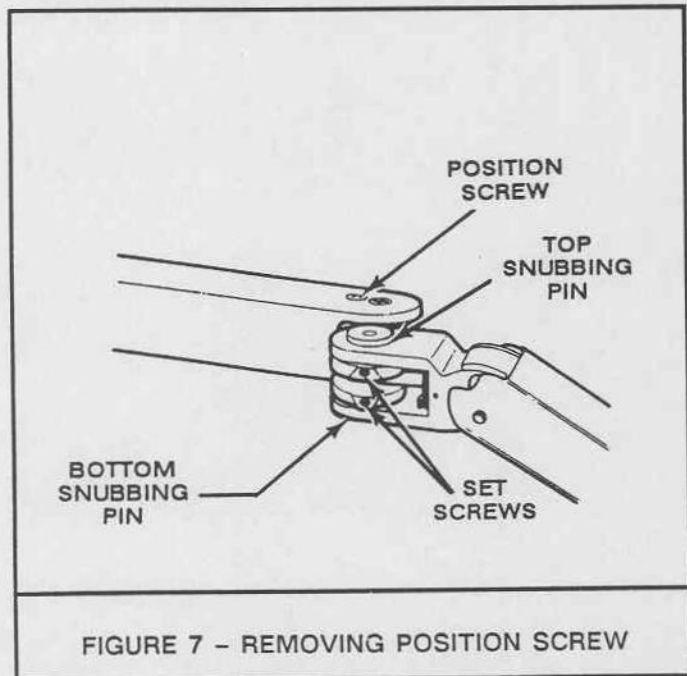
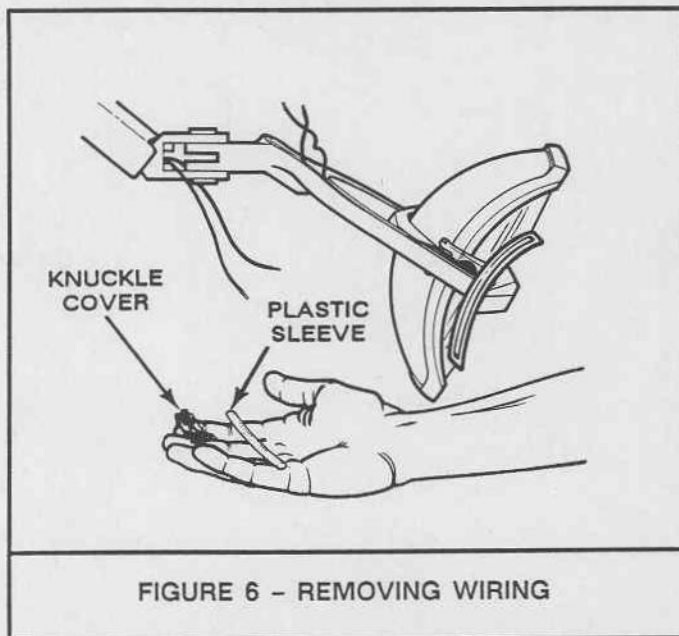


C. Locate and remove two wire nuts from wires leading from front arm (Figure 5).

D. Pop out knuckle cover, pull wires back through slot, and remove plastic sleeve (Figure 6).

**NOTE: Examine position of wiring for reassembly.**

E. Remove position screw (Figure 7), allowing joint to straighten. Pull slack wire from rear arm, pop out second knuckle cover (Figure 8), and pull out wires from front arm.



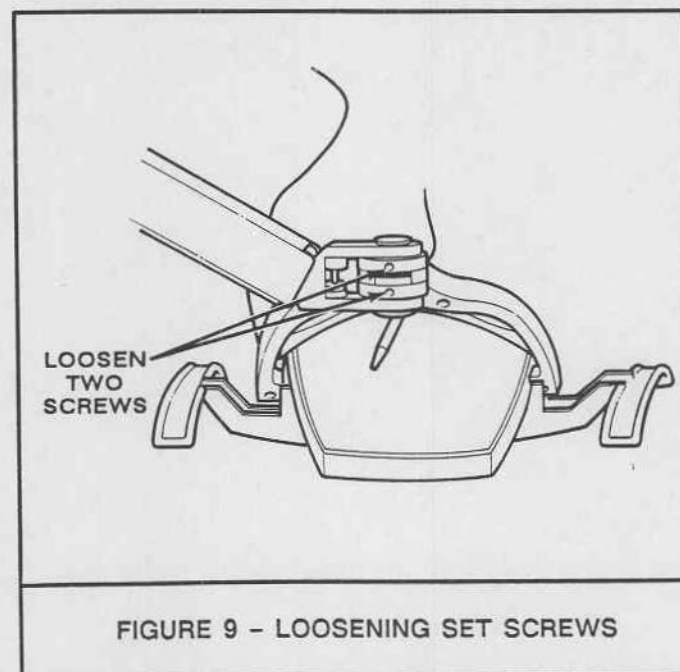
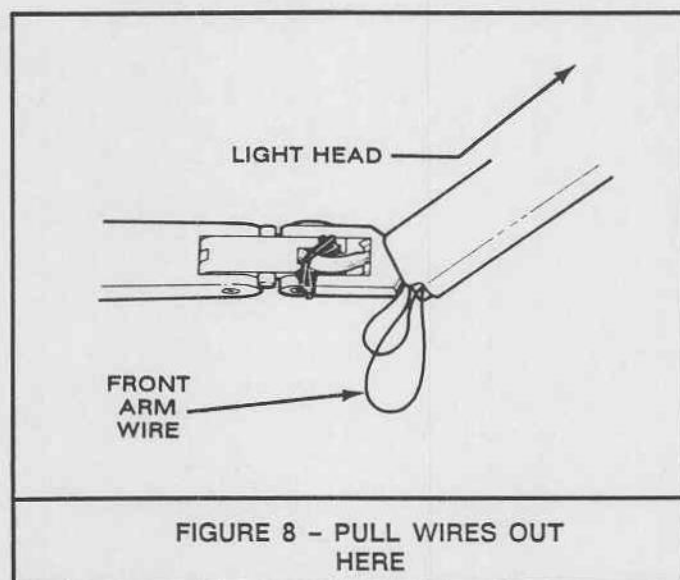
F. Loosen two set screws (Figure 9) by turning counterclockwise.

G. Remove top and bottom snubbing pins, springs and washers using t-handle hex wrench (Figure 10), and remove light head.

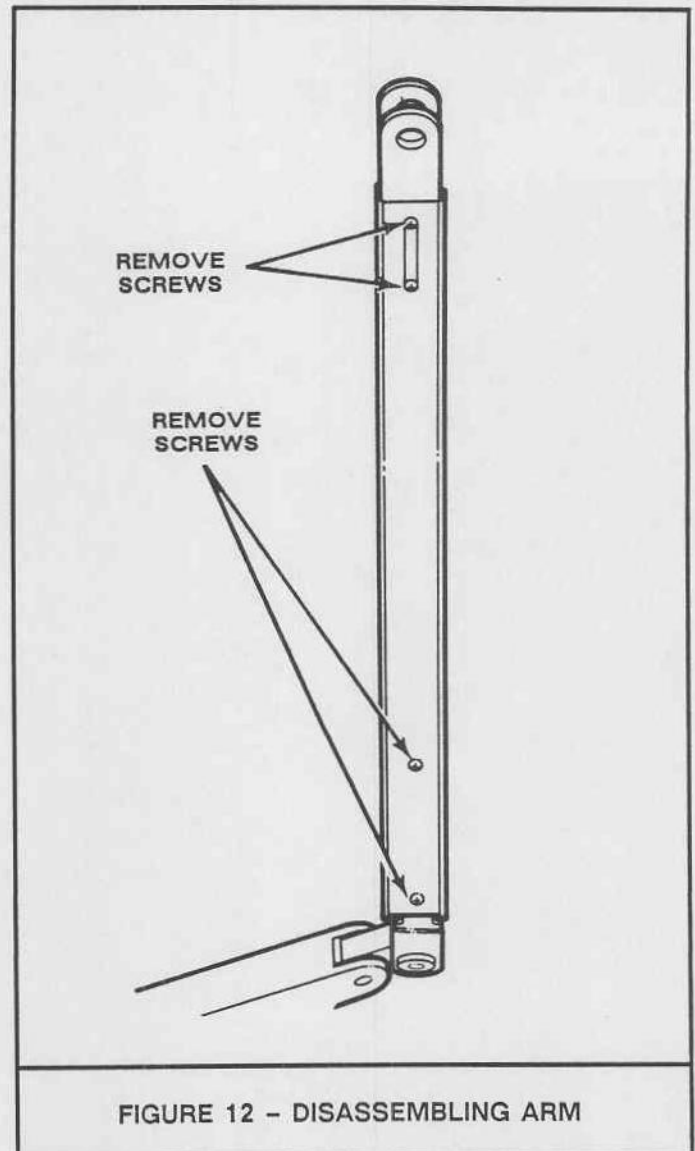
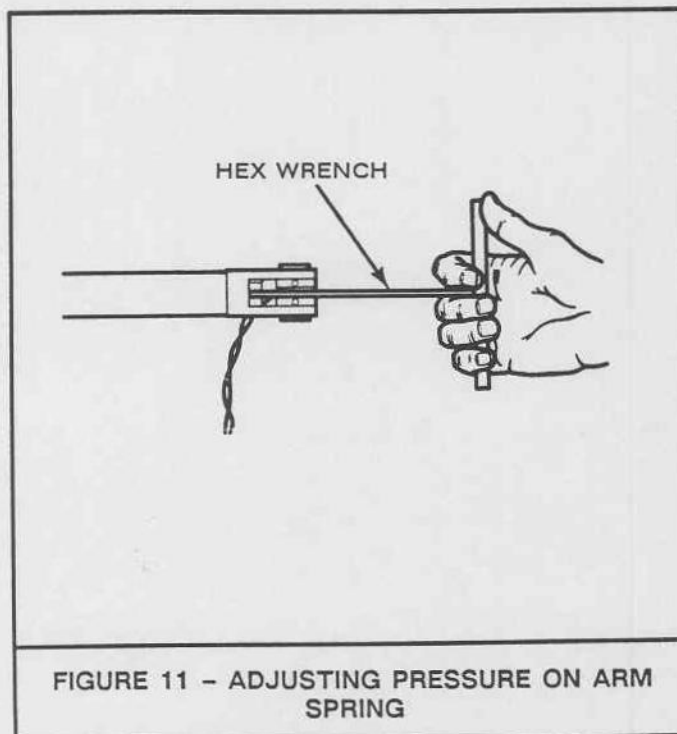
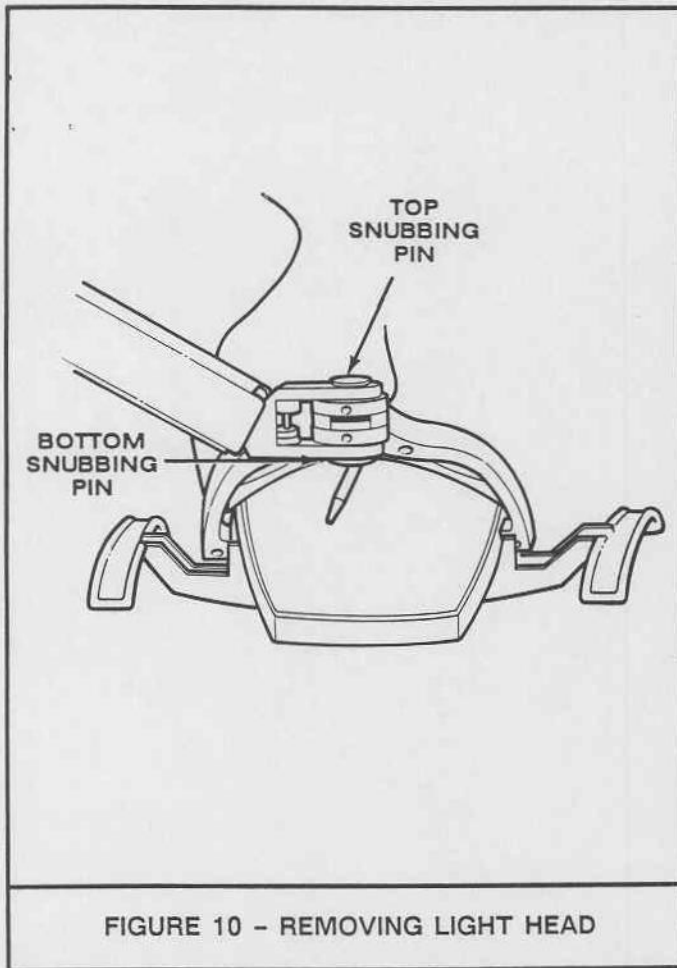
H. Insert t-handle hex wrench into rear of arm and turn counterclockwise until arm tension is relieved, plus four extra turns (Figure 11).

**WARNING: Ensure tension has been released from arm spring.**

I. Remove four screws from underside of arm (Figure 12).







J. Punch out pin using pin punch, as shown in Figure 13, and remove knuckle.

**NOTE:** Pin is designed to permit removal or insertion in one direction only. Push from side with flats on pin.

K. Slip cover off front arm. (NOTE: Method of replacing old or new style springs is identical.) Remove pivot pin in tie bar assembly from rear knuckle support using pin punch and set aside. Discard tie bar assembly (Figure 14).

L. Insert the new arm spring into rear knuckle support. Ensure notch in pivot pin is oriented in same direction as slotted ends of tie bars (Figure 14).

M. Replace arm cover, knuckle and pin. Secure cover using the four screws and Loctite® Screw Adhesive provided, applying a small amount of Loctite to each screw before install-

ing (Figure 12). Press arm down to install two front screws. Hold arm up to install two rear screws (Figures 15 and 16).

**CAUTION:** All four screws on underside of arm must be torqued to 40-inch pounds.

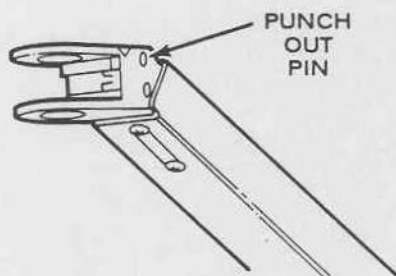


FIGURE 13 - REMOVING PIN

N. For LFII's with plastic handles, insert hex wrench into rear of arm and turn clockwise approximately eight turns once spring pressure engages.

For LFII's with metal handles, insert hex wrench into rear of arm and turn clockwise approximately 10-1/2 turns once spring pressure engages.

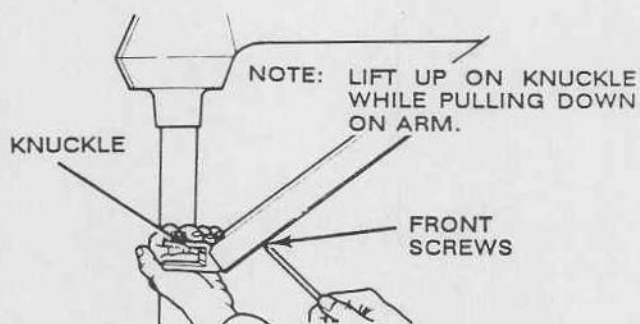


FIGURE 15 - INSTALLING TWO FRONT SCREWS

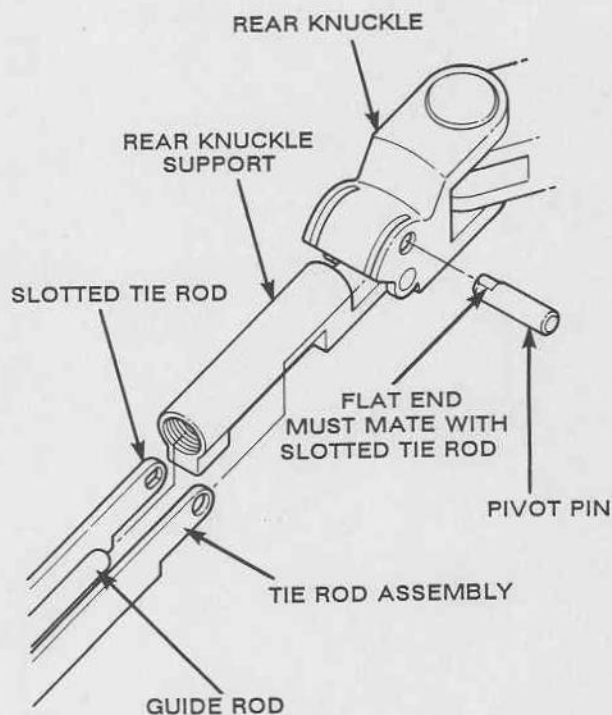


FIGURE 14 - REPLACING ARM SPRING ASSEMBLY

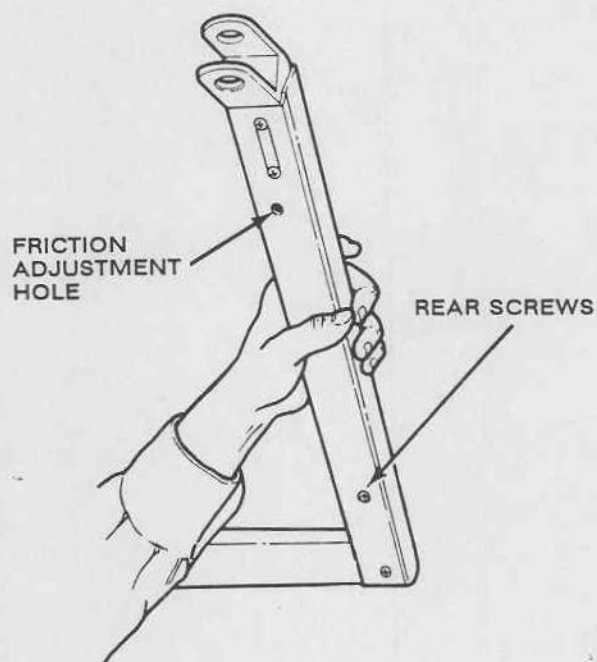


FIGURE 16 - LIFT UP TO INSTALL REAR SCREWS

- O. Remount light head.

**NOTE:** Flat side of snubbing pins should face set screws.

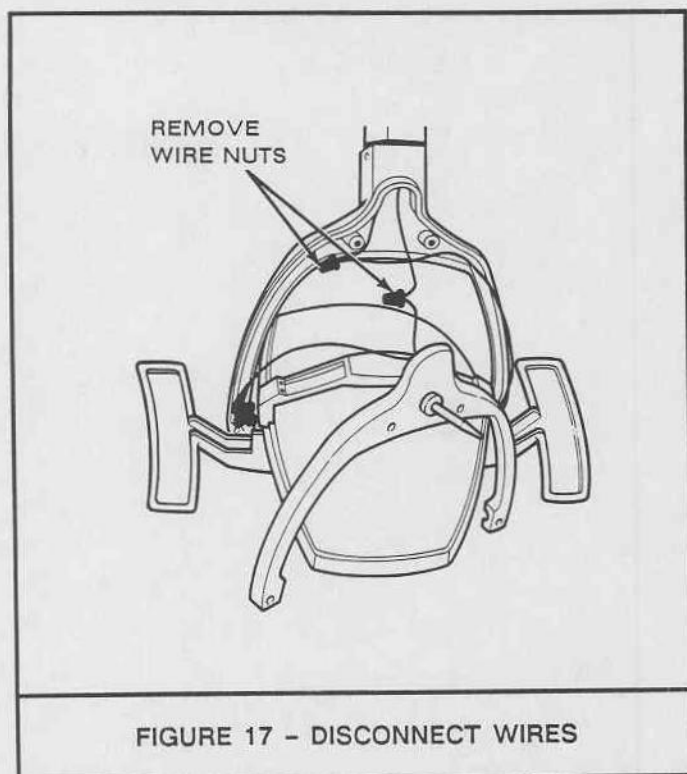
- P. Place yoke cap on yoke and check balance of light. Adjust (using t-handle hex wrench) if necessary, turning clockwise to increase lift force of arm or counterclockwise to decrease lift force. The spring lift force is sensitive to screw rotation (use 1/4 turn increments).

**NOTE:** Equal force (or up to twice as much force DOWN) should be required to move light up or down.

- Q. Route wires back through arm (as previously installed, ensuring wires are in channels) to head, replacing plastic sleeve and knuckle cover. Do not pinch wires.

**CAUTION:** Inspect rewiring carefully to prevent damage to wire, especially at arm joints.

- R. Replace position screw (Figure 7).

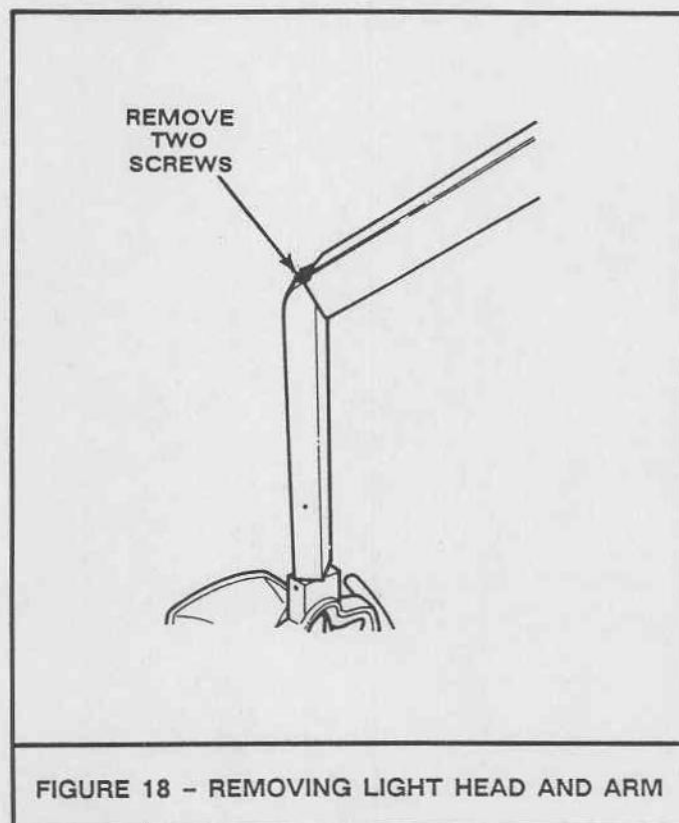


## VII. REPLACE ARM SPRING IN COLUMN MOUNT LIGHT

- A. Disconnect all power to light.
- B. Disassemble light yoke by removing four screws (Figure 4).

- C. Locate and remove two wire nuts from wires leading from front arm (Figure 17).

- D. Remove light head with arm by removing two screws at top of arm joint (Figure 18).



**NOTE:** Examine position of wiring for reassembly.

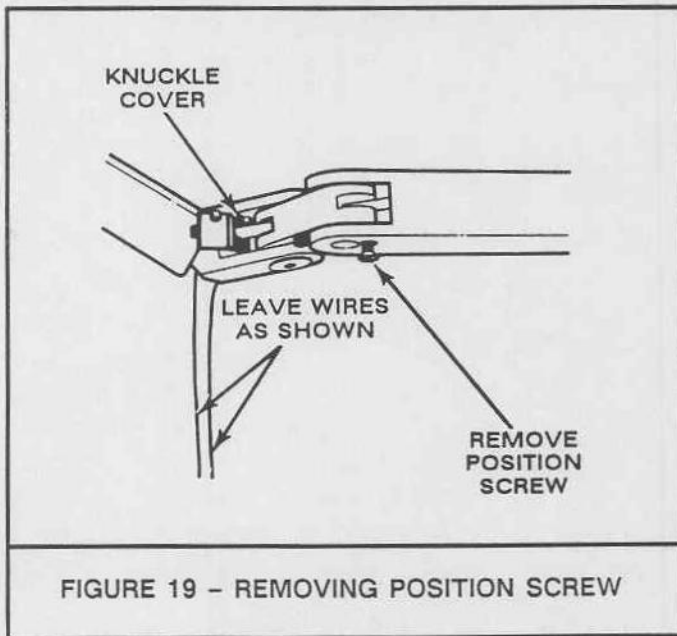
- E. Pull wires up through arm and leave as shown in Figure 19. Remove position screw, allowing joint to straighten. Pop out knuckle cover to permit access to rear of arm.
- F. Insert t-handle hex wrench (not provided) into rear of arm (refer to Figure 21 for hex wrench insertion), and turn counterclockwise until arm tension is relieved, plus four extra turns.

**WARNING:** Ensure tension has been released from gas spring.

- G. Remove four screws from underside of arm (Figure 12).
- H. Punch out pin and remove knuckle (Figure 20).

**NOTE:** Pin is designed to permit removal or insertion in one direction only. Push from side with flats on pin.

- I. Perform procedure in Section 3-VI-K through 3-VI-N.



NOTE: Equal force (or up to twice as much force DOWN) should be required to move light up or down.

- L. Route wires back through arm (as previously installed, ensuring wires are in channels) to head, replacing knuckle cover. Do not pinch wires.

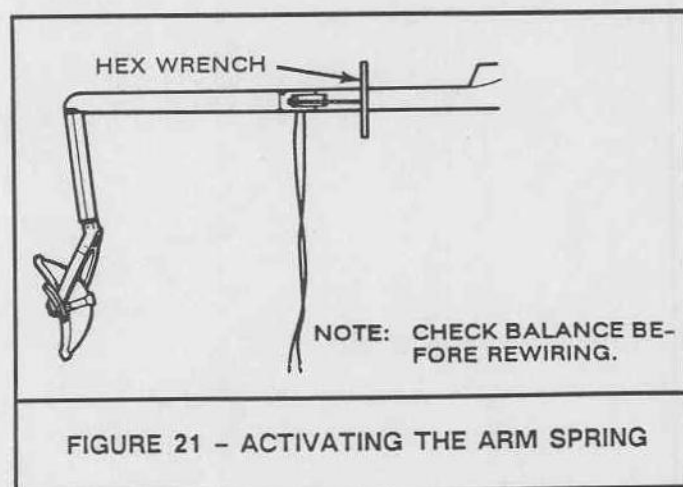
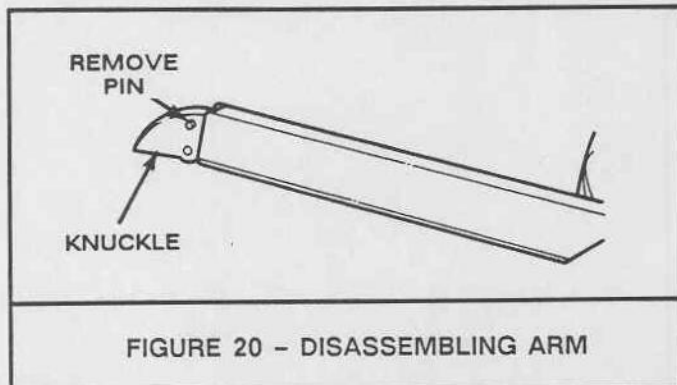
CAUTION: Inspect rewiring carefully to prevent damage to wire, especially at arm joints.

- M. Replace position screw (Figure 19).

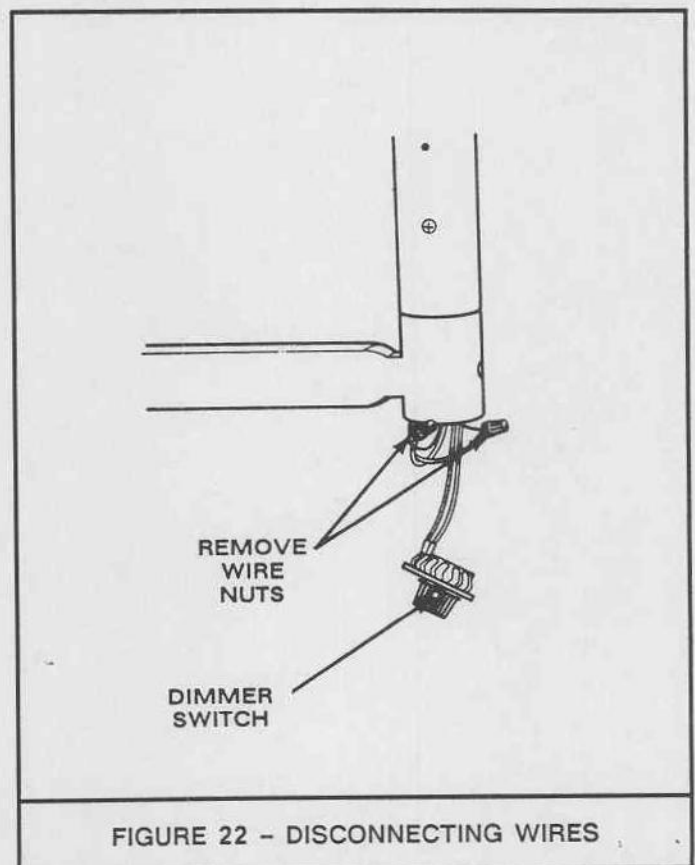
- N. Remount light head and yoke cover.

#### VIII. REPLACE ARM SPRING IN TRACK MOUNT LIGHT

- A. Disconnect all power to light.
- B. Pull out dimmer switch, locate and remove two wire nuts from wires leading from front arm (Figure 22). Pull out wires.

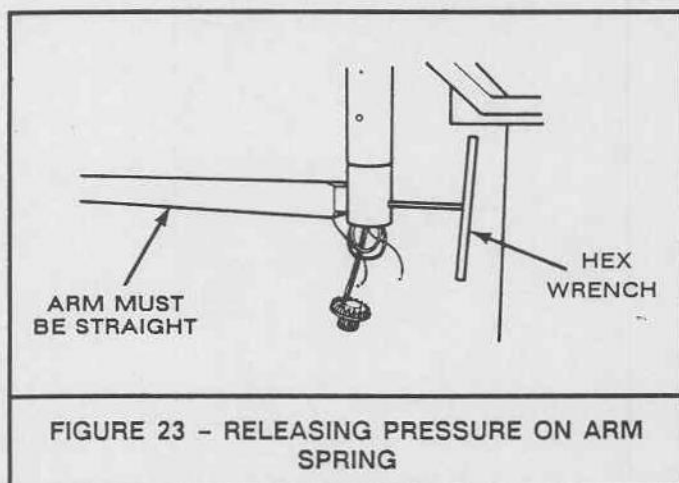


- K. Temporarily attach light head and arm, then check balance of light. Adjust, using hex wrench if necessary.



- C. Straighten arm as in Figure 23, and insert t-handle hex wrench through hole in column to engage gas spring. Turn counterclockwise until arm tension is relieved, plus four extra turns.



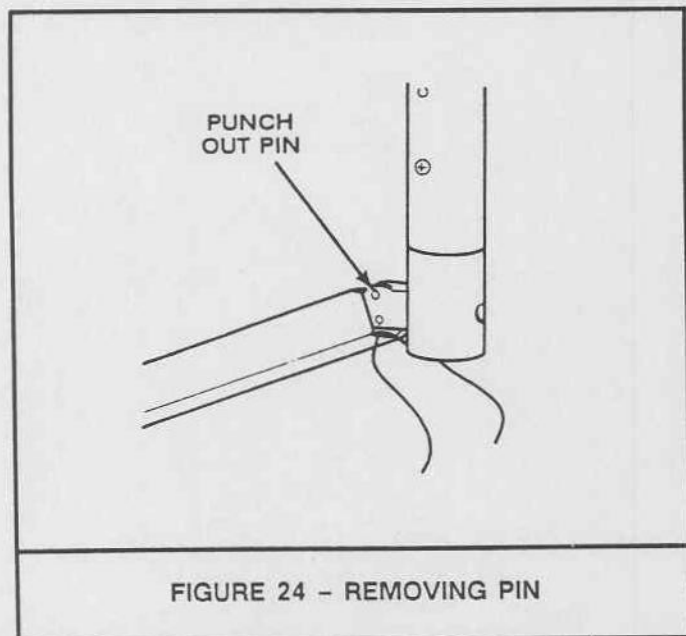


**WARNING:** Ensure tension has been released from arm spring.

D. Remove four screws from underside of arm.

E. Punch out pin as shown in Figure 24, allowing arm to come off.

**NOTE:** Pin is designed to permit removal or insertion in one direction only. Push from side with flats on pin.



G. Perform procedure in Section 3-VI-M and Section 3-VI-N. (Figures referred to in these sections show similar, not exact, operations.)

H. Check balance of light. Adjust (using t-handle hex wrench) if necessary.

**NOTE:** Equal force (or up to twice as much force DOWN) should be required to move light up or down.

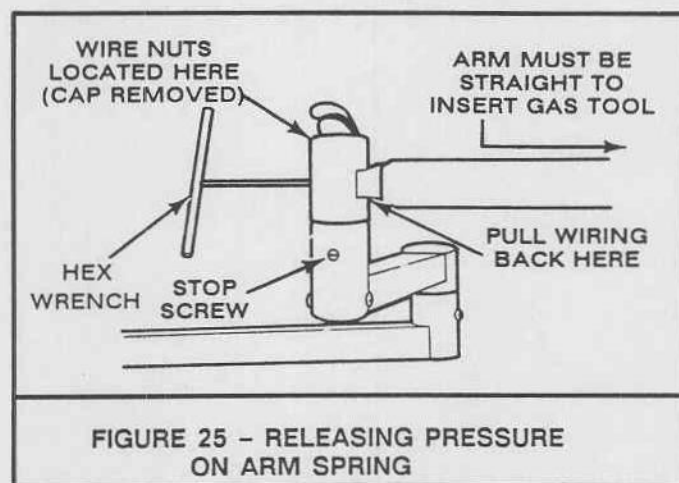
I. Route wires back to knuckle (as previously installed), ensuring wires are in grooves. Do not pinch wires.

**CAUTION:** Inspect rewiring carefully to prevent damage to wire, especially at joints.

#### IX. REPLACE ARM SPRING IN WALL MOUNT LIGHT

A. Disconnect all power to light.

B. Pop out cap, locate and remove two wire nuts (Figure 25). Pull out wiring as indicated.



C. Straighten arm as in Figure 25, and insert t-handle hex wrench through hole to engage gas spring. Turn counterclockwise until arm tension is relieved (pressure is released), plus four extra turns.

D. Perform procedure in Section 3-VI-M and Section 3-VI-N. (Figures referred to in these sections show similar, not exact, operations.)

#### X. FRICTION ADJUSTMENT

A. All Models

**NOTE:** Once spring is counter-balanced, friction adjustment may be necessary.

- If up-drift or down-drift occurs, tighten screw (clockwise) with a 9/64" hex wrench through the friction adjustment hole (Figure 26).

#### XI. REPLACE FRONT ARM

A. All Models

- Remove the yoke cap retained by four screws (Figure 4).

- Remove two wire nuts attached to two wires coming from front arm (Figure 5).

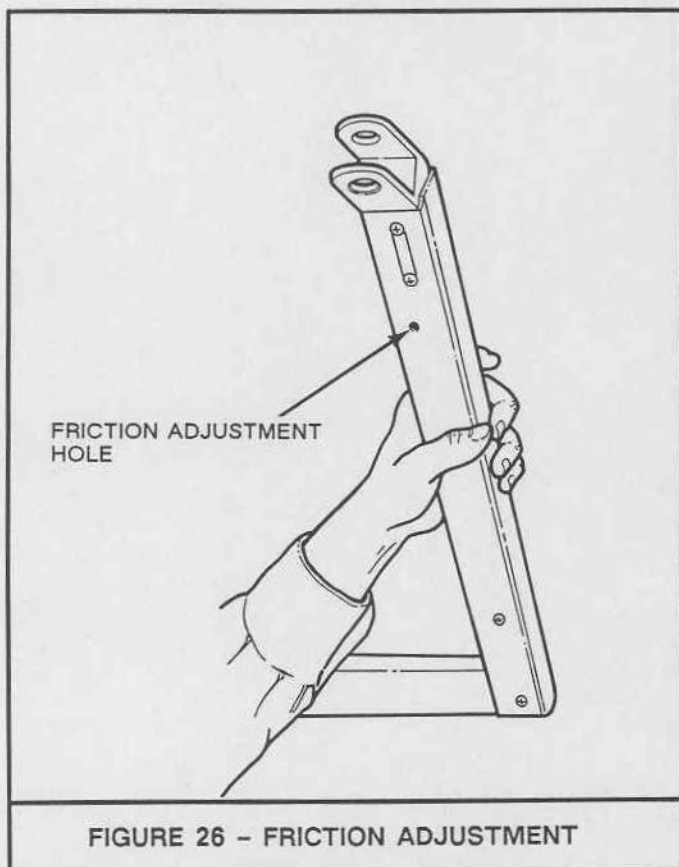


FIGURE 26 - FRICTION ADJUSTMENT

## B. Head Removal

### 1. Models LFII, LFLII, LFWII (3) Only

- Loosen the two set screws in yoke near snubbing pins (Figure 4).
- Remove top and bottom snubbing pin (Figure 5), and slide the yoke and head assembly out of the knuckle.

### 2. Models LFCII, LFCII-D, LFTII, LFTII-D, LFWII (2) Only

- Remove the down arm/yoke head assembly from the front knuckle by removing two screws (Figure 18).

## C. Front Arm Removal

### 1. Models LFWII (2), LFWII (3), LFLII Only

- Remove cap from top of rear knuckle (Figure 25). Remove two wire nuts attached to two wires coming from front arm.
- Remove the stop screw from the rear arm joint (Figure 25). Lift the front arm out of the rear arm.

### 2. Models LFTII, LFTII-D Only

- Pull out the dimmer control from the rear knuckle (Figure 1). Remove two wire nuts attached to two wires coming from the front arm.
- Remove the stop screw and the set screw in the arm mounting collar (Figure 1). Unscrew the arm mounting collar from the column (counterclockwise) as viewed from below.
- Disconnect the two exposed Mate-n-Lok® connectors, which permit arm removal.

### 3. Models LFII, LFCII, LFCII-D Only

- Loosen the two set screws in the arm adapter near the snubbing pins (Figure 7).
- Remove the top and bottom snubbing pin and slide the front arm off the arm adapter.

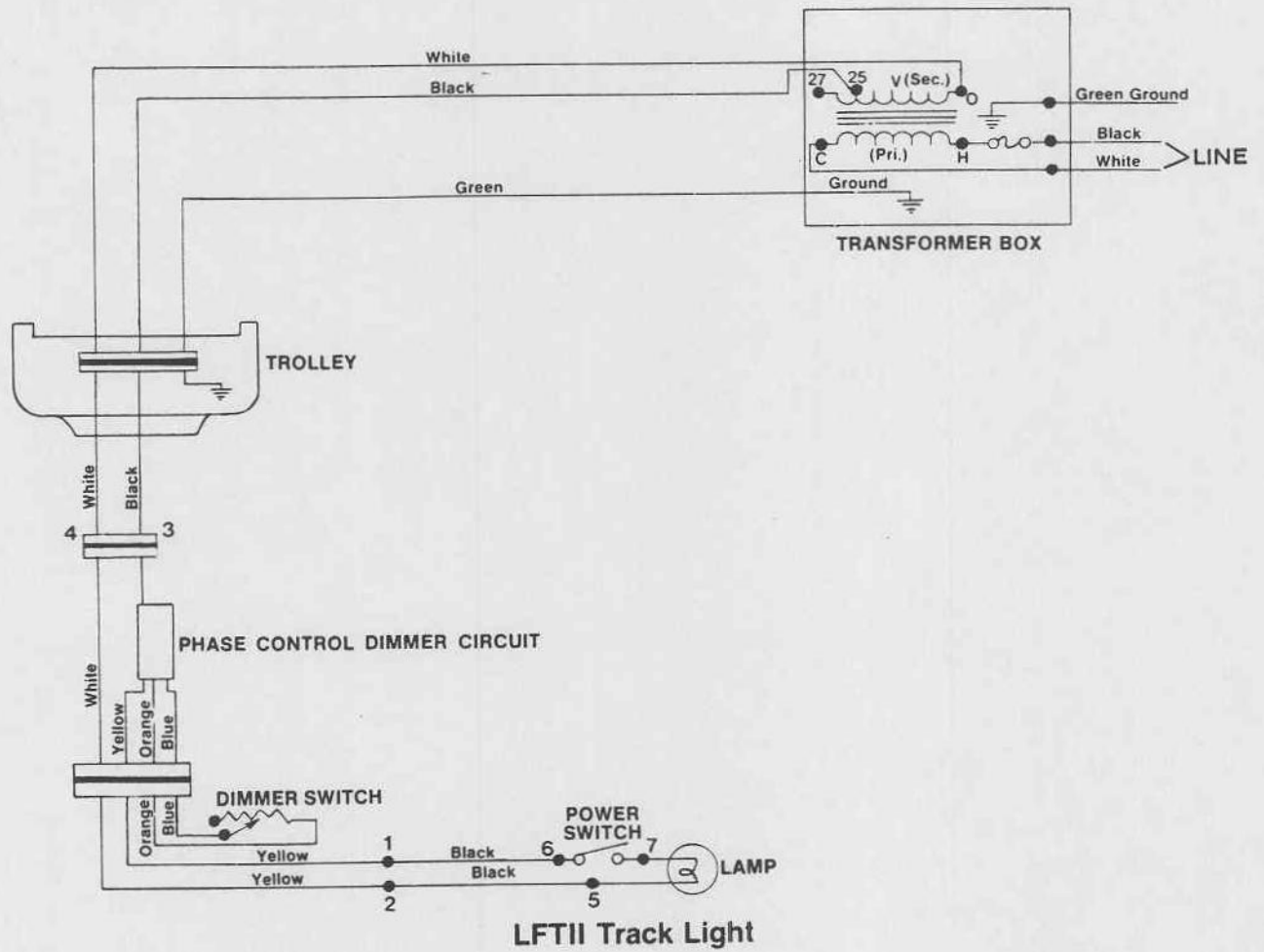
## D. All Models

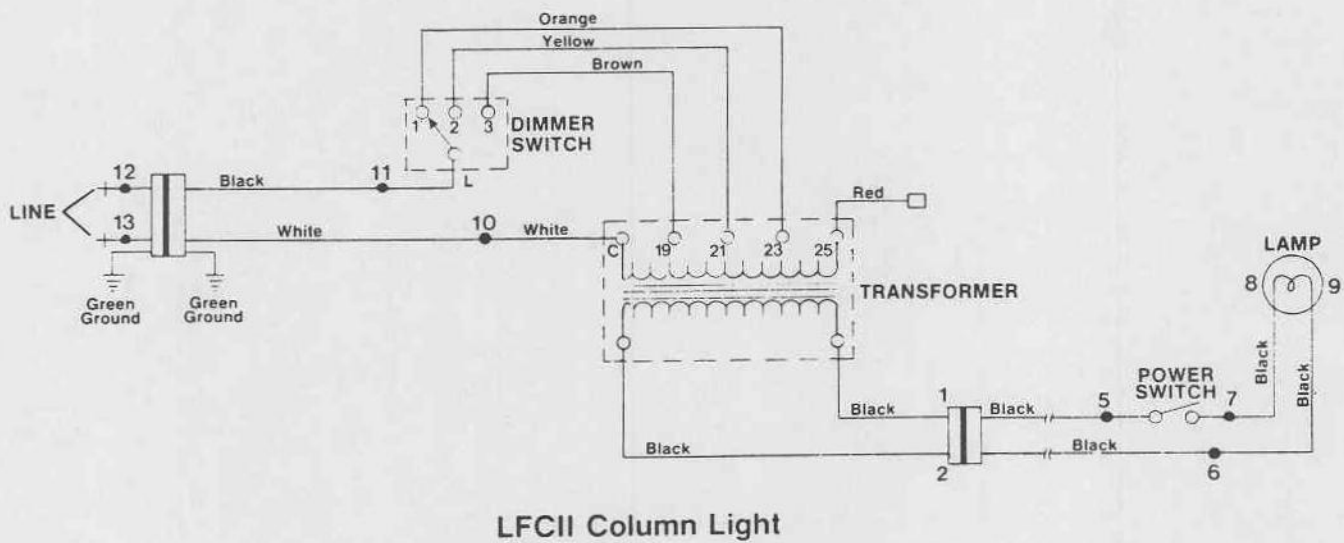
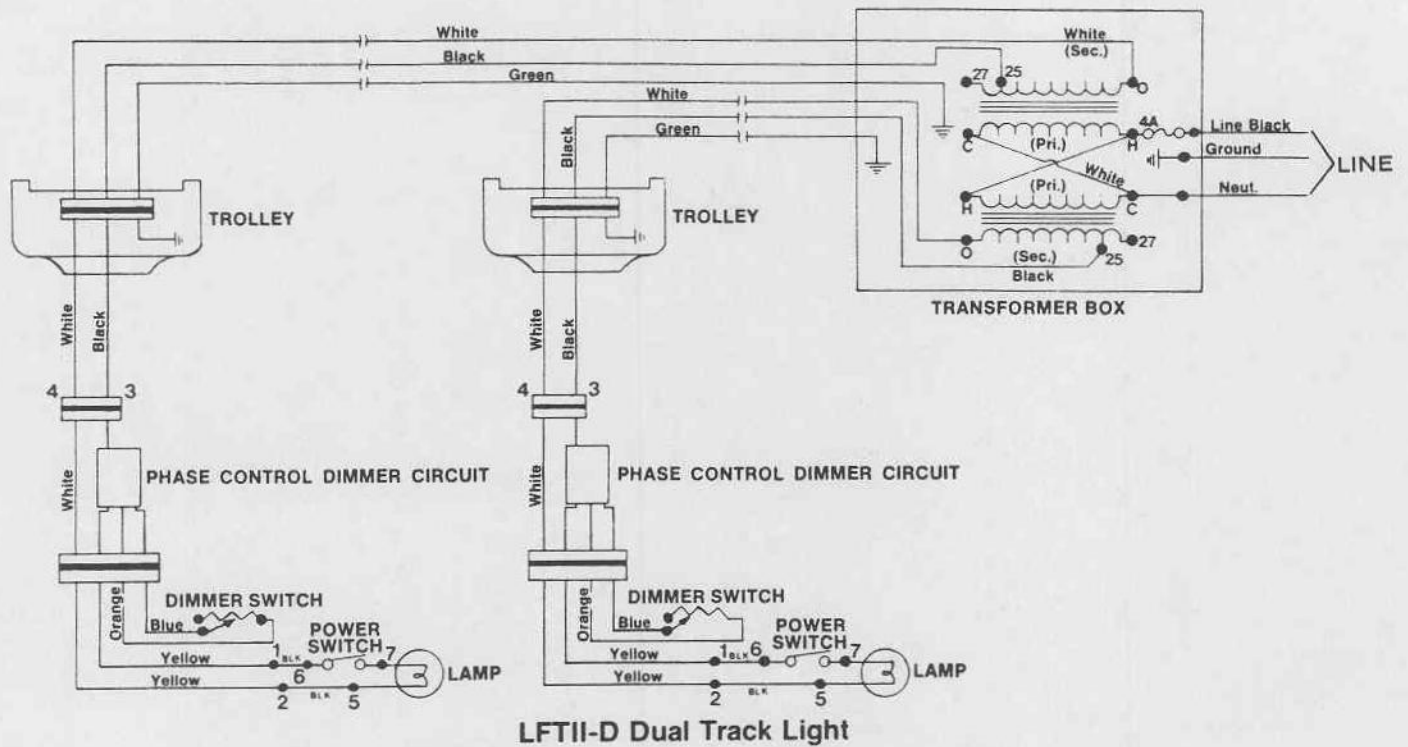
- Reverse procedure for installing new arm.

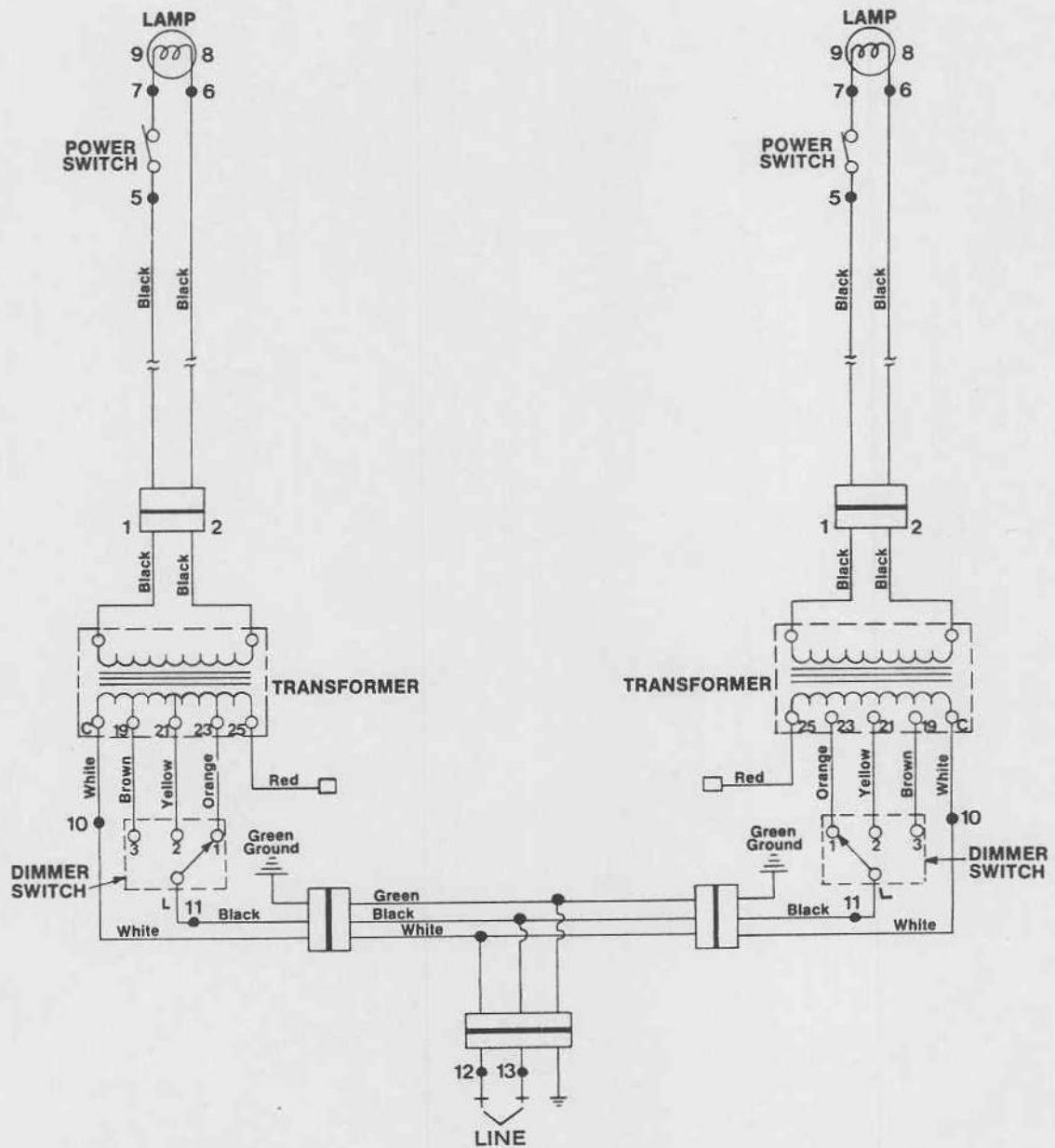
**NOTE:** For arm balance adjustment, refer to LFII Installation and Adjustment Instructions, YL3-096035.



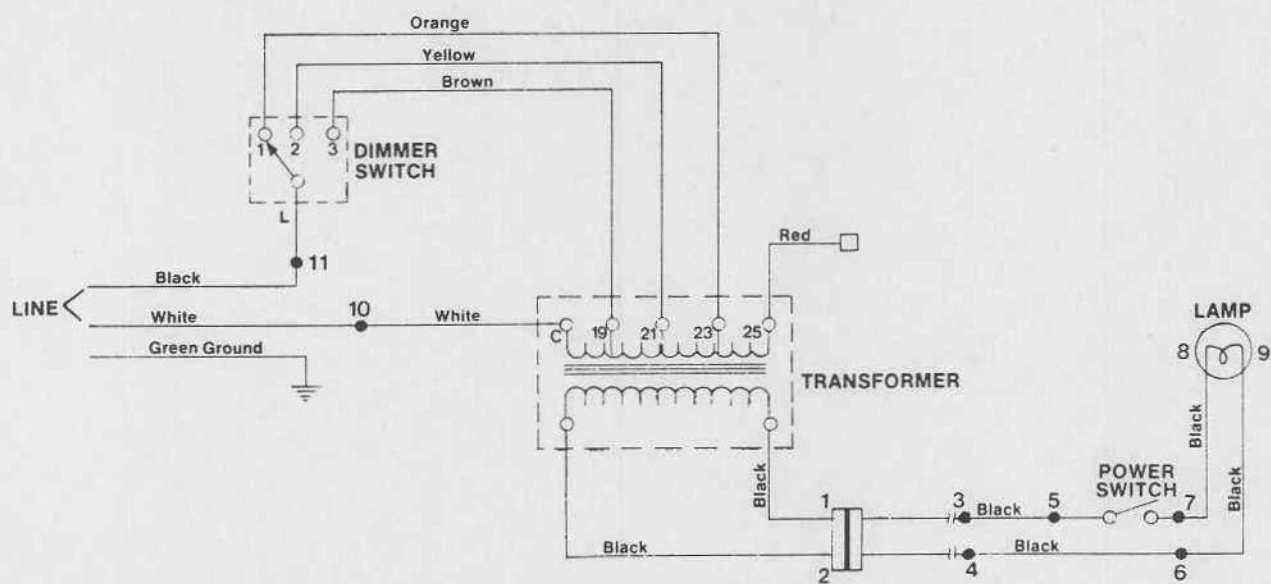
## SECTION 4 - WIRING DIAGRAMS







LFCII-D Dual Column Light



LFII Unit Light, LFLII Lab Light, LFWII(2) and LFWII(3) Wall Light



FOR MODELS

**LF II**

**LFT II**

**LFT II-D**

**LFC II**

**LFC II-D**

**LFW II**

**LFL II**

# **light fantastic® II**

## **repair manual**

*Pelton  
&  
Crane*

P.O. BOX 241147 CHARLOTTE, N.C. 28224



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# LIGHT FANTASTIC II REPAIR MANUAL

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CONTENTS	PAGE
<b>1. OPERATING CAPABILITIES . . . . .</b>	<b>1</b>
Light Pattern . . . . .	1
Reflector . . . . .	1
Lamp . . . . .	1
Drift Free Arm . . . . .	1
<b>2. TROUBLESHOOTING PROCEDURES . . . . .</b>	<b>1</b>
<b>3. HOW TO . . .</b>	
Trace Voltage on Track Light . . . . .	3
Trace Voltage on All Other Models . . . . .	4
Test Transformer . . . . .	5
Test Phase Control Dimmer Circuit . . . . .	5
Focus Light . . . . .	5
Replace Gas Spring in Unit Mount Light . . . . .	6
Replace Gas Spring in Column Mount Light . . . . .	10
Replace Gas Spring in Track Mount Light . . . . .	12
Replace Gas Spring in Wall Mount Light . . . . .	13
Replace Front Arm . . . . .	13
<b>4. WIRING DIAGRAMS</b>	
LFTII Track Light . . . . .	14
LFTII-D Dual Track Light . . . . .	15
LFCII Column Light . . . . .	15
LFCII-D Dual Column Light . . . . .	16
LFII Unit Light, LFLII Lab Light, LFWII (2) and LFWII (3) . . . . .	16
Wall Light . . . . .	17

NOTE: Refer to Installation and Adjustment Instructions, YL3-096035 and Use and Care Manual, YL3-096037 for additional information on the LFII series.

## 1. OPERATING CAPABILITIES

### 1.01 Light Pattern

The Light Fantastic II light pattern is 3" high x 8" wide and is factory focused at 27" with an excellent pattern range between 18" and 36". The light can be refocused as desired. The pattern shape stays constant throughout the range of operating distances, with no pattern separation. The correlated color temperature is between 3600° K and 4300° K.

### 1.02 Reflector

The back surface coating, which diffuses light emitting from back of reflector, is a ceramic material (frit) fused into the glass and will not peel. The dichroic coating on the front surface reflects visible energy (light) but allows infrared and ultraviolet energy to pass through. This coating also controls color of light.

### 1.03 Lamp

A bulb life of 3000 hours is average expectation for this quartz-halogen type lamp. Intensity range is from 1500 FC, for low setting to 2500 FC, for high setting at 117 VAC (primary).

### 1.04 Drift Free Arm

A gas spring (rather than compensation coil springs) provides reliable and safe drift-free arm movement.

---

## 2. TROUBLESHOOTING PROCEDURES

**NOTE:** To accurately identify and locate all parts, references are made to the LIGHT FANTASTIC II Parts List, YL8-096064. For example, (13-06) indicates a reference to page 13, index number 06 of the LIGHT FANTASTIC II Parts List.

SYMPTOM	TROUBLE	REMEDY
2.01 Light will not operate.	a. Switch is off. (10-09 or 12-21).	a. Turn switch on.
	b. Lamp burned out (6-19). Resistance of lamp should be 0.3 ohms. Solid black coating on inside of lamp or broken filament are indicative of lamp failure.	b. Replace lamp.
	c. Lamp not seated correctly on contacts.	c. Seat lamp. Rotate lamp back and forth to ensure correct seating.
	d. Fuse blown (22-02). (Track light only.)	d. Replace fuse.
	e. Power not available. (Refer to Section 3, paragraphs 3.01 or 3.02.)	e. Provide power.
	f. Transformer failure (14-07, 16-08, 22-11, 24-13 or 28-05). (Refer to paragraph 3.03, How To Test Transformer.)	f. Replace transformer.

SYMPTOM	TROUBLE	REMEDY
	g. Phase control dimmer circuit failure (26-15). (Refer to paragraph 3.04, How To Test Phase Control Dimmer Circuit.)	g. Replace phase control dimmer circuit.
	h. Dimmer failure (12-31). (Short circuit blue wire and orange wire: If light comes on, dimmer is defective.)	h. Replace dimmer.
	i. Broken wire or loose connection. (Refer to Section 3, How To Trace Voltage.)	i. Replace broken wire or improve connection.
<b>2.02</b> Handles are hot.	a. Light on and pointed toward ceiling when not in use.	a. Point light down and/or turn off when not in use.
	b. Handles are touching frame.	b. Replace handle (6-05) and/or handle insulators (6-07) to provide 1/16" gap all around (between handle and frame.)
	c. Voltage too high.	c. Check voltage (Refer to Section 3, How To Trace Voltage.)
<b>2.03</b> Reflector clamp will not snap closed.	a. Not pushing hard enough.	a. Push with thumb while gripping handle with fingers.
	b. Hinge has moved.	b. Loosen (Do not remove) hinge screws and adjust position with release pin in slotted hole.
	c. Needs oiling.	c. Lightly oil release pin (6-30).
<b>2.04</b> Light too dim.	a. Dimmer switch on low setting (12-31, 14-12, 16-20).	a. Turn switch to higher setting.
	b. Dirty reflector and/or shield (6-01, 6-31).	b. Clean reflector and shield. (Reflector Cleaning Kit No. HB9-017134.)
	c. Lamp turning dark.	c. Replace lamp (6-19).
	d. Voltage too low.	d. Check voltage. (Refer to Section 3, How To Trace Voltage.)
<b>2.05</b> Light too bright.	a. Dimmer switch on high setting (12-31, 14-12, 16-20).	a. Turn switch to lower setting.
	b. Voltage too high.	b. Check voltage. (Refer to Section 3, How To Trace Voltage.)
<b>2.06</b> Lamp life too short.	a. Cheaper and/or inferior lamps on market.	a. Use only Pelton & Crane lamps (Q150T4/CL/PC/25V).
	b. Voltage too high.	b. Check voltage. (Refer to Section 3, How To Trace Voltage.)
<b>2.07</b> Light blinks.	a. Corroded contacts (6-17).	a. Clean contacts with sandpaper.
	b. Broken or frayed wire.	b. Replace wire. (Refer to Section 3, How To Replace Gas Spring.)
<b>2.08</b> Unsatisfactory light pattern.	a. Out of focus.	a. Focus light. (Refer to paragraph 3.05.)
	b. Exhaust tip on lamp (6-19) pointing towards reflector.	b. Turn lamp so exhaust tip points <b>away</b> from reflector.
<b>2.09</b> Light pattern not "square" with patient's mouth.	a. Mounting post not plumb.	a. Plumb mounting post.
	b. Yoke bent (10-07, 12-14).	b. Straighten or replace yoke.

SYMPTOM	TROUBLE	REMEDY
<b>2.10</b> Head drifts in yoke.	a. Pivot bushings loose (6-08).	a. Tighten pivot bushings. (Refer to Installation and Adjustment Instructions, YL3-096035, paragraphs 2.19 through 2.24.)
<b>2.11</b> Front arm drifts up.	a. Gas spring not properly adjusted (8-04).	a. Using 5/16" x 9" long allen wrench or Pelton & Crane tool (HB7-016207), reduce force by turning counterclockwise. (Refer to Installation and Adjustment instructions, YL3-096035, paragraphs 2.25 through 2.33.)
<b>2.12</b> Front arm drifts down.	a. Insufficient force on gas spring (8-04). b. Gas spring defective.	a. Using gas tool, increase force by turning clockwise. (Refer to paragraph 2.11a.) b. Replace gas spring. (Refer to Section 3, How To Replace Gas Spring.)
<b>2.13</b> Arm drifts to side.	a. Mounting post not plumb. b. Loose snubbing pins or friction joints (10-02, 12-02.)	a. Plumb mounting post. b. Tighten pins and joints. (Refer to Installation and Adjustments Instructions YL3-096035, Section 2.)
<b>2.14</b> Friction joints constantly need tightening.	a. Mounting post not plumb. b. Loose set screws at joints (10-06).	a. Plumb mounting post. b. Tighten set screws. (Refer to Installation and Adjustment Instructions, YL3-096035, Section 2.)

### 3. HOW TO . . . . .

#### 3.01 Trace Voltage on Track Light (Systematically trouble shoot if track light will not come on.)

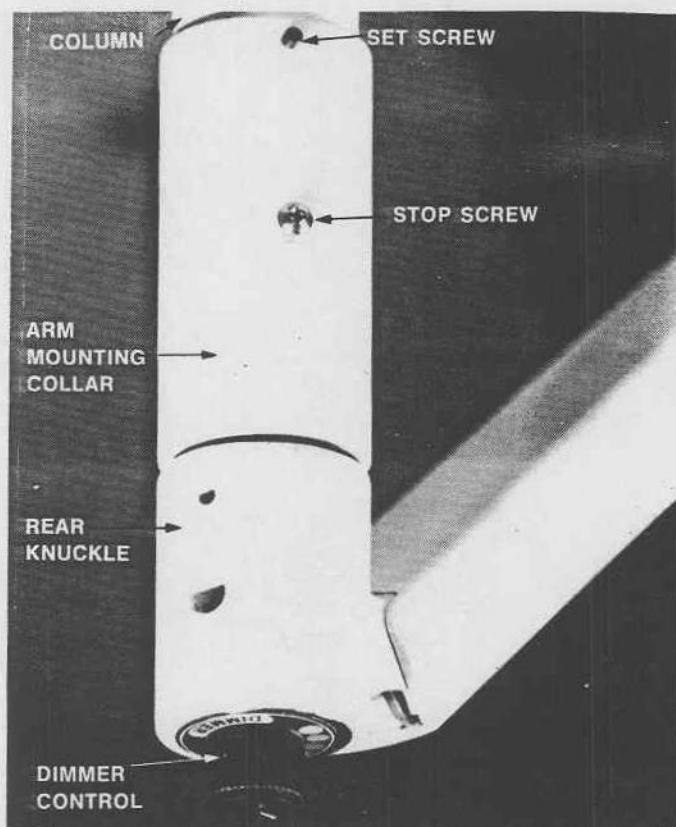
- A. Remove transformer cover (22-13). Measure voltage across terminals marked "C" and "H" (Refer to appropriate wiring diagram in Section 4.) Voltage should be 117 VAC. If not present, proceed to step B. If 117 VAC is present, proceed to step C.

#### **WARNING: 117 VAC**

- B. Measure voltage between incoming power lines (black and white wires) at wire nuts. If voltage is present, fuse (22-02) is blown. If voltage is not present, the problem is external to the light. Check circuit breakers.
- C. Measure voltage across secondary terminals marked "0" and "25". If not 25 VAC (light burning) or 27 VAC (light not burning), transformer is bad. If voltage is present, proceed to step D.



- D. Remove wire nuts at points 1 and 2 (located inside post knuckle 12-30). (Refer to appropriate wiring diagram in Section 4.) Attach a 4 ohm, 200 watt (or larger) resistor between yellow wires 1 and 2 and measure 25 VAC. If voltage is present, proceed to step F. If voltage is not present, short orange and blue wires together. If 25 VAC is present at 1 and 2 with wires shorted, dimmer (12-31) is defective and should be replaced. If 25 VAC is not present, proceed to step E.
- E. Remove light from column by removing set screw, stop screw, and unscrewing arm mounting collar counterclockwise as viewed from below (Figure 1). Pull phase control (26-15) out of column. Disconnect mate-n-lok connector and measure voltage at pins 3 and 4. If 27 VAC is present, phase control is defective and should be replaced. If 27 VAC is not present, wires are broken or connector is loose between transformer and bottom of column. Check and replace as necessary.



**FIGURE 1—REMOVING LIGHT FROM COLUMN**

- F. Remove resistor and re-attach yellow wires to black wires. Remove yoke cap (12-18) and measure 27 VAC across points 5 and 6. If no voltage is present, wire in front arm is broken and (both) should be replaced. If 27 VAC is present, proceed to step G.
- G. Measure voltage between points 5 and 7. If no voltage is present, ON/OFF switch

(12-21) is defective and should be replaced. If 27 VAC is present, proceed to step H.

- H. Remove lamp (6-19). Measure voltage across socket contacts (6-17). If 27 VAC is present, lamp is defective or contacts are corroded, and should be replaced or cleaned. If no voltage is present, proceed to step I.
- I. Wire from socket is broken. Replace both sockets.

### 3.02 Trace Voltage On All Other Models (Systematically troubleshoot if light will not come on.)

- A. Measure voltage between points 1 and 2. (Refer to appropriate wiring diagram, Section 4.) If voltage (25/23/21/19 VAC) is present, proceed with step B. If no voltage is present, proceed to step F.
- B. **For LFLII, LFWII (2), LFWII (3) only.** Measure for (25/23/21/19 VAC) between points 3 and 4 (located inside post knuckle (12-34 or 10-19)). If voltage is present, proceed to step C. If no voltage is present, wires between 1/2/3/4 are broken and should be replaced.
- C. Measure (25/23/21/19 VAC) between points 5 and 6. If voltage is present, proceed to step D. If no voltage is present, wires in front arm are broken and should be replaced.
- D. Measure (25/23/21/19 VAC) between points 6 and 7. If voltage is present, proceed to step E. If no voltage is present, switch (10-9, 12-21) is defective and should be replaced.
- E. Measure (25/23/21/19 VAC) between points 8 and 9. If voltage is present, lamp (6-19) is defective or contacts (6-17) are corroded and should be replaced or cleaned. If no voltage is present, socket or socket wires are defective. Replace both sockets (6-17).
- F. Measure 117 VAC between points 10 and 11. If voltage is present, proceed to step G. If no voltage is present, proceed to step H.
- G. Remove transformer (14-07, 16-08) and switch (14-16, 16-12). Check continuity between L and 1, L and 2, and L and 3 with switch turned to H, M, L of **disconnected** switch. Continuity proves switch is good and indicates transformer is defective or switch is defective and transformer is good. Measure resistance between terminals 1 and 2 (with transformer **disconnected**) which should be approximately 0.1 ohms. Infinite ohms indicate bad transformer. Measure resistance between white and red lead of **disconnected** transformer, which should be approximately 1 ohm. Infinite ohms indicate a bad transformer.
- H. **For LFLII, LFLII, LFWII (2) and LFWII (3),** a power problem exists which is external to the light. (Check circuit breakers.)



For LFCII or LFCII-D, the problem could also be in wiring through column. Measure voltage between points 12 and 13. If 117 VAC is present, the problem is in the wiring in column. If no voltage is present, the problem is external to light. (Check circuit breakers.)

### 3.03 Test Transformer

#### Tracklight

Remove transformer cover (22-13). Measure voltage across terminals marked "C" and "H". (Refer to appropriate wiring diagram in Section 4.) Voltage should be 117 VAC. Measure voltage across secondary terminals marked "0" and "25". Voltage should read 25 VAC (light burning) or 27 (light not burning).

#### Other Models

Remove transformer (14-07, 16-08) and switch (14-16, 16-12.) Check continuity between L and 1, L and 2, and L and 3 with switch turned to H, M, L of **disconnected** switch. Continuity proves either switch or transformer is defective. Measure resistance between terminals 1 and 2 (with transformer **disconnected**) which should be 0.1 ohms. Infinite ohms indicate defective transformer. Measure resistance between white and red lead of **disconnected** transformer, which should be 1 ohm. Infinite ohms indicate defective transformer.

### 3.04 Test Phase Control Dimmer Circuit

Remove wire nuts from points 1 and 2 located in post knuckle (12-30). (Refer to appropriate wiring diagram in Section 4.) Attach a 4 ohm, 200 watt (or larger) resistor between yellow wires 1 and 2 and measure 25 VAC. If voltage is **not** present, short orange and blue wires together. If 25 VAC is present with wires shorted, dimmer (12-31) is defective. If 25 VAC is not present either way, and power is available at the transformer, secondary phase control dimmer circuit is defective.

### 3.05 Focus Light

**NOTE:** The lamp focus is factory set for an optimum pattern 27" from the oral cavity. This results in an excellent pattern in an 18" to 36" range from the oral cavity. The lamp may be refocused for an optimum pattern at other operating distances.

- Turn two screws on front of light (Figure 2) clockwise until both screws are tight. The patterns will now be partially overlapped as shown in Pattern A in Figure 3.
- Turn each screw counterclockwise equally one turn at a time until the patterns are superimposed as shown in Pattern B in Figure 3.

ADJUSTMENT  
SCREWS

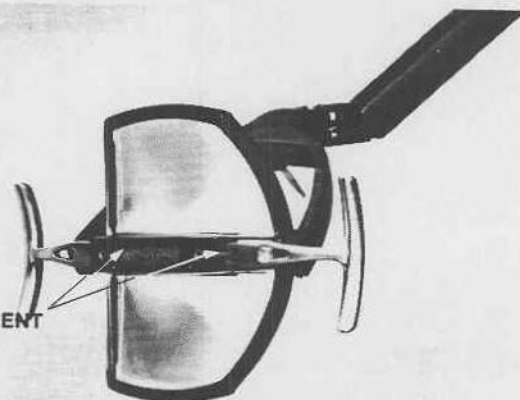


FIGURE 2—ADJUSTMENT SCREWS FOR FOCUSING LAMP

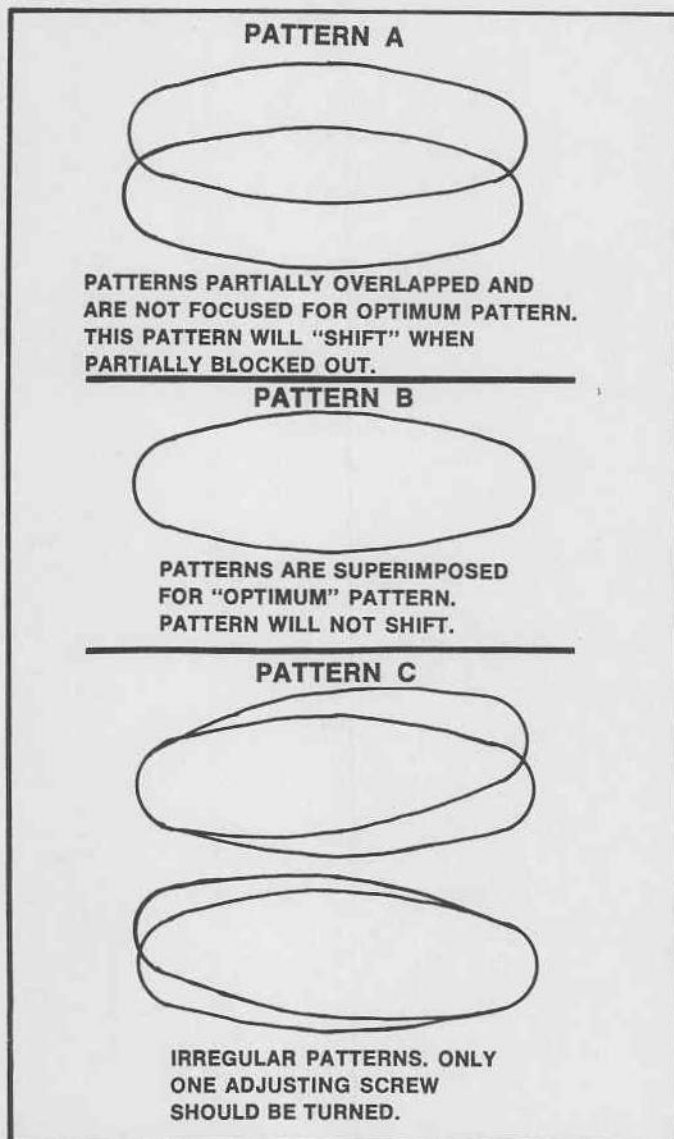


FIGURE 3—FOCUSING LAMP PATTERNS

- Inspect for optimum pattern by blocking out one half of the light. If the pattern shifts, further adjustment is required. Otherwise, focusing of the lamp is completed.
- If patterns are irregular as shown in Pattern C in Figure 3, turn only one screw until the patterns are superimposed.

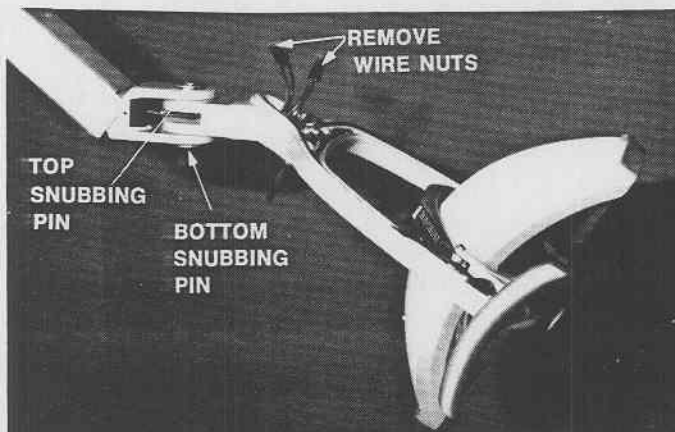
### 3.06 Replace Gas Spring in Unit Mount Light

- A. Disconnect all power to light.
- B. Disassemble light yoke by removing four screws (Figure 4).



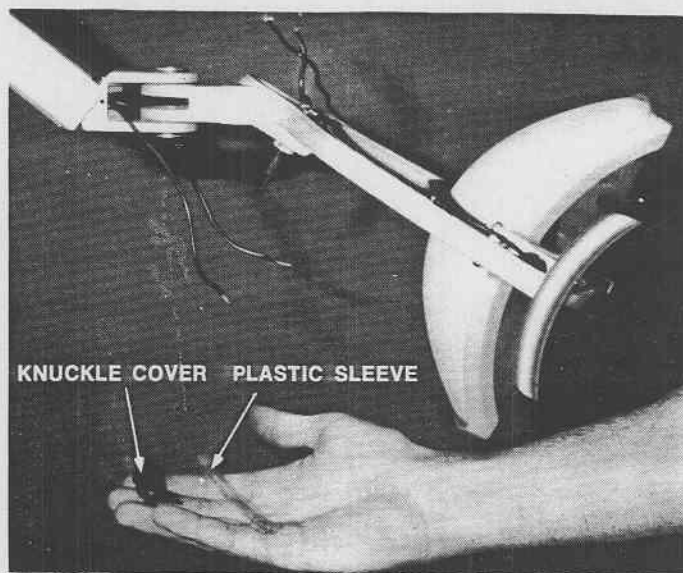
**FIGURE 4—TO DISASSEMBLE**

- C. Locate and remove two wire nuts from wires leading from front arm (Figure 5).



**FIGURE 5—DISCONNECT WIRES**

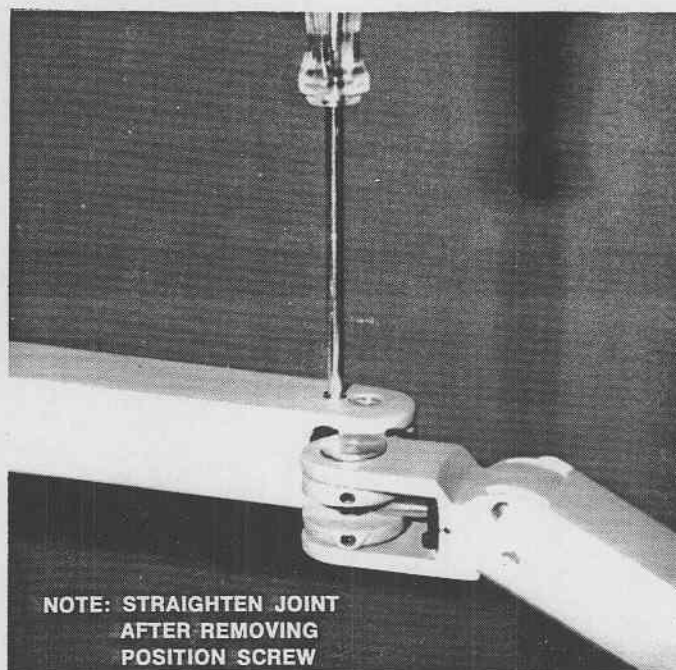
- D. Pop out knuckle cover, pull wires back through slot, and remove plastic sleeve (Figure 6).



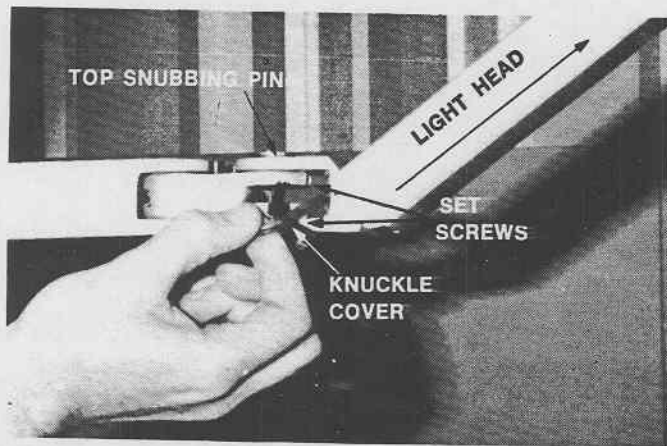
**FIGURE 6—REMOVING WIRING**

**NOTE:** Examine position of wiring for re-assembly.

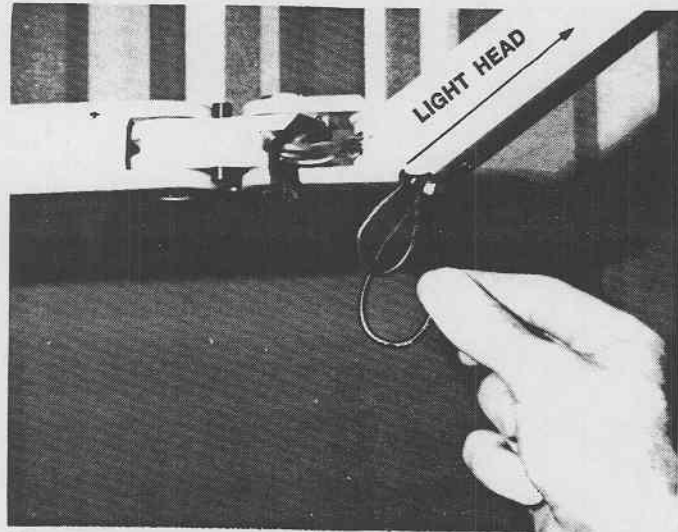
- E. Remove position screw (Figure 7), allowing joint to **straighten**. Pull slack wire from rear arm, pop out second knuckle cover (Figure 8), and pull out wires from front arm as shown in Figure 9. Leave wires as shown in Figure 10.



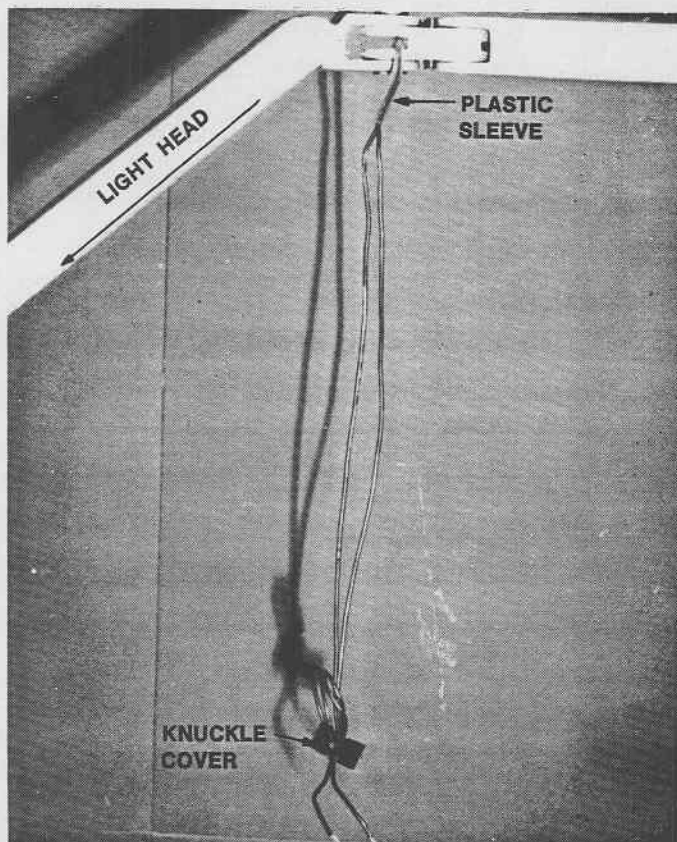
**FIGURE 7—REMOVING POSITION SCREW**



**FIGURE 8—REMOVING WIRING**

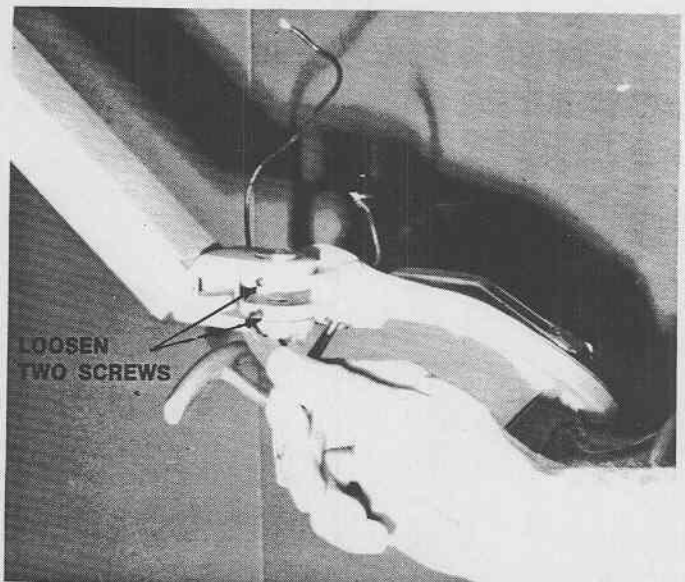


**FIGURE 9—PULL WIRES OUT THROUGH HERE**



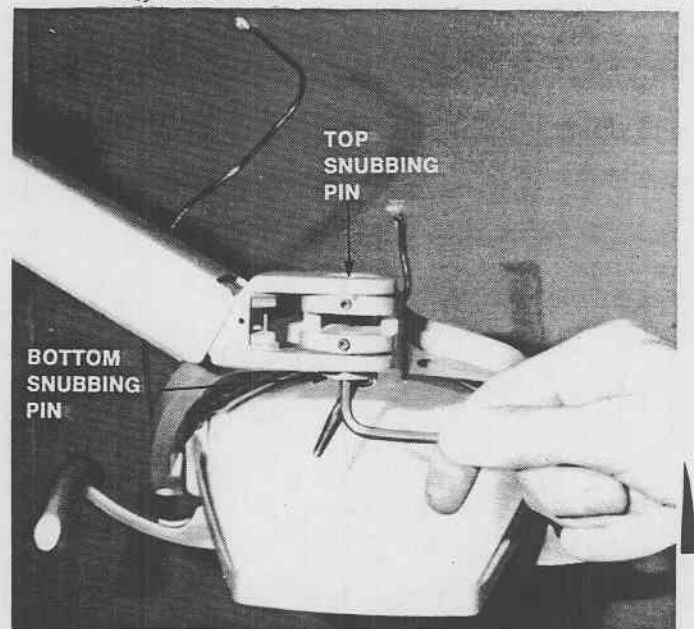
**FIGURE 10—LEAVE WIRING AS SHOWN**

F. Loosen two allen screws (Figure 11) by turning counterclockwise.



**FIGURE 11—LOOSENING ALLEN SCREWS**

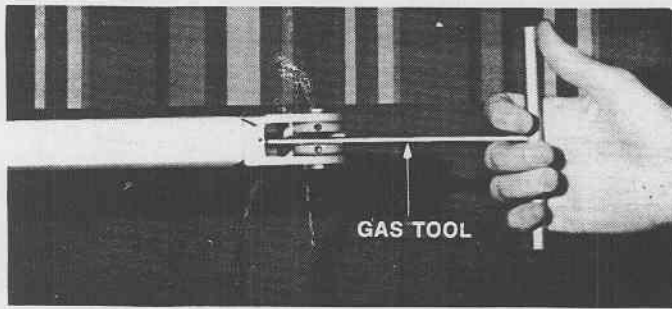
G. Remove top and bottom snubbing pins, springs and washers (Figure 12), and remove light head.



**FIGURE 12—REMOVING LIGHT HEAD**



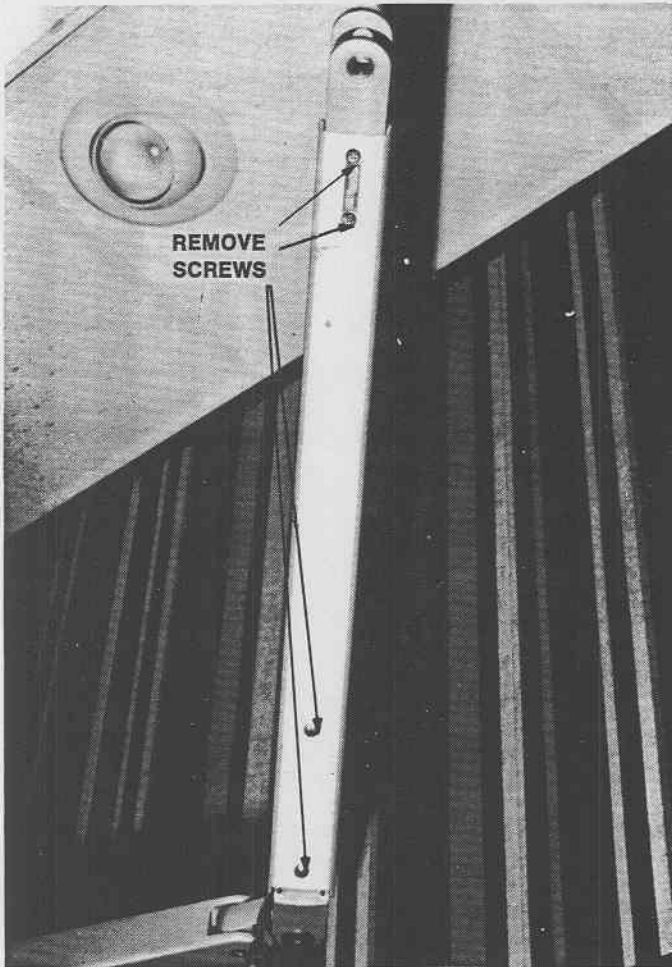
- H. Insert gas tool into rear of arm and turn counterclockwise until arm tension is relieved (pressure is released), plus **four** extra turns (Figure 13).



**FIGURE 13—ADJUSTING PRESSURE ON GAS SPRING**

**WARNING:** Ensure pressure has been released from gas spring.

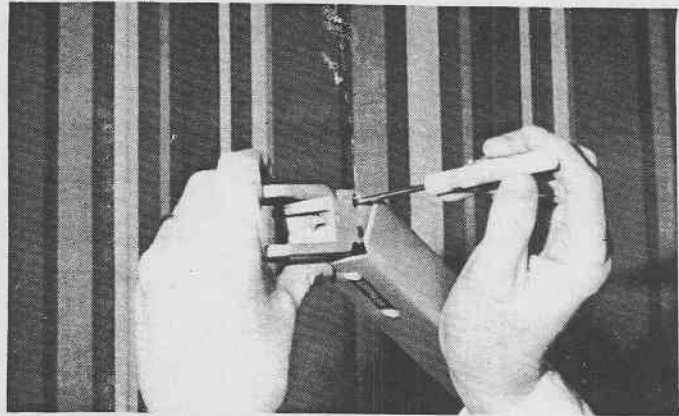
- I. Remove four screws from underside of arm (Figure 14).



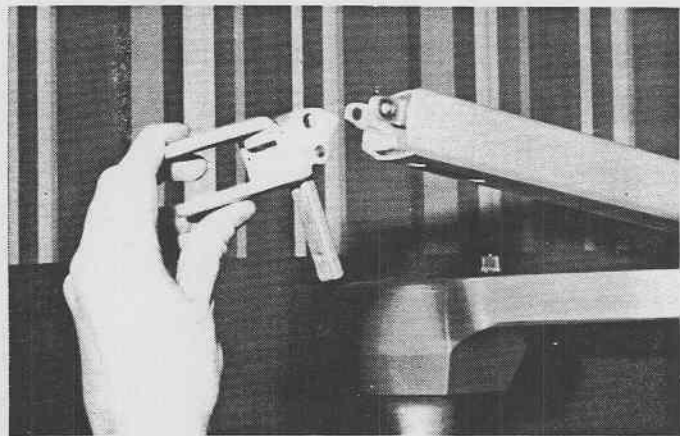
**FIGURE 14—DISASSEMBLING ARM**

- J. Punch out pin as shown in Figure 15, and remove knuckle as shown in Figure 16.

**NOTE:** Pin is designed to permit removal or insertion in one direction only. Push from side with flats on pin.



**FIGURE 15—REMOVING PIN**



**FIGURE 16—REMOVING KNUCKLE**

- K. Slip cover off front of arm and replace gas spring (Figure 17 and 18).

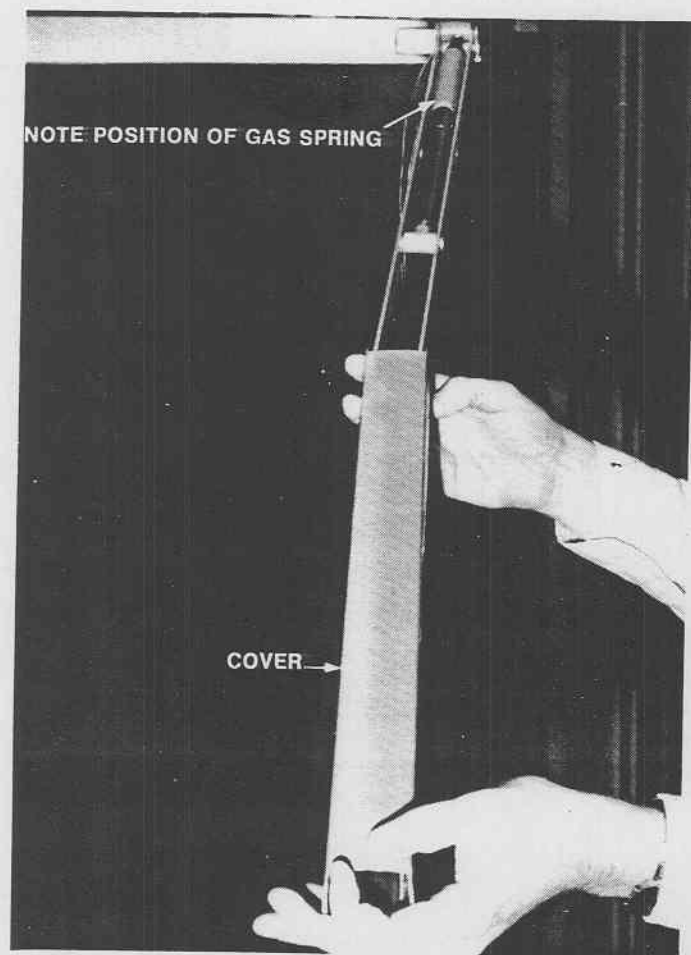


FIGURE 17—REMOVING COVER

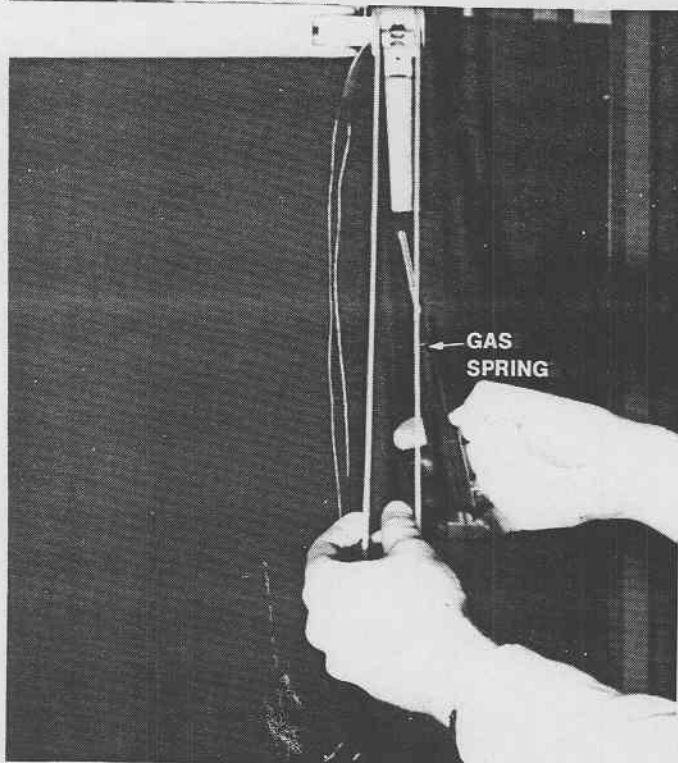


FIGURE 18—REPLACING GAS SPRING

- L. Replace arm cover, knuckle and pin. Hold **down** on arm to install two front screws and **up** to install two rear screws (Figures 19 and 20).

**CAUTION:** All four screws on underside of arm must be torqued to 40-inch pounds.

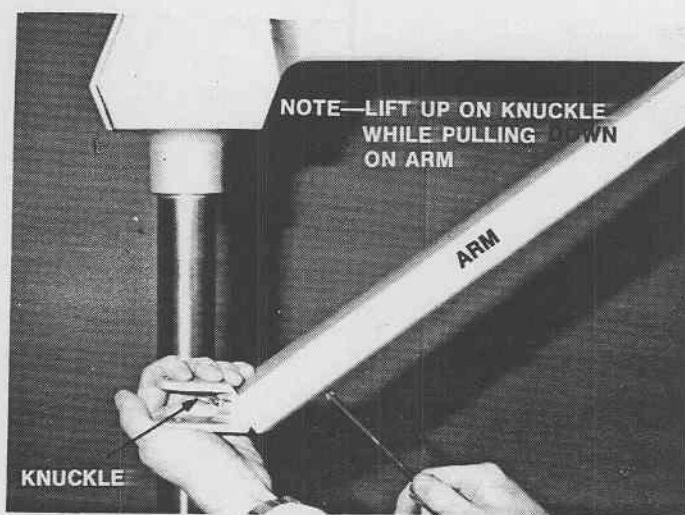


FIGURE 19—INSTALLING TWO FRONT SCREWS

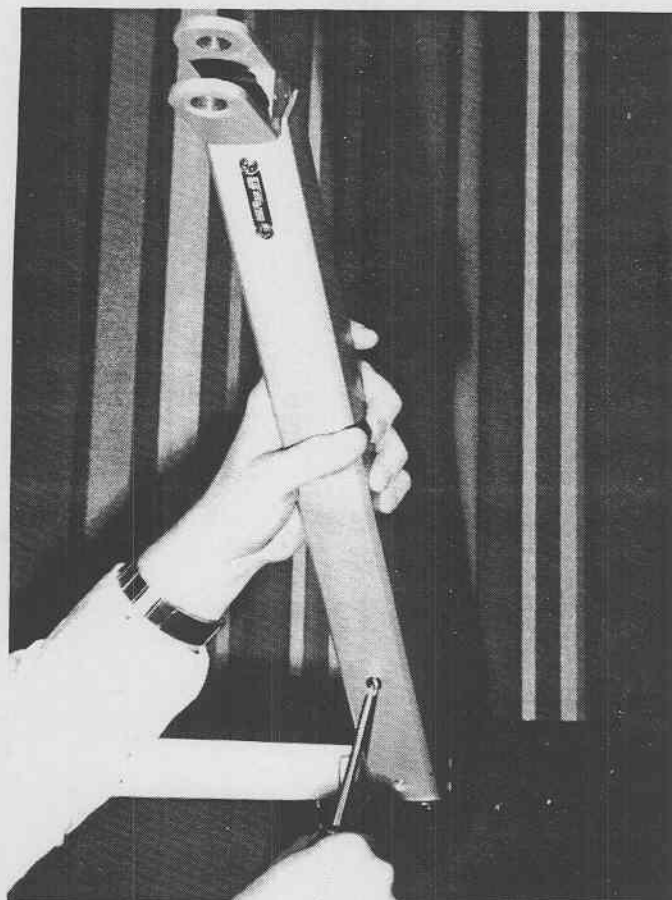


FIGURE 20—LIFT UP TO INSTALL REAR SCREWS



- M. Insert gas tool into rear of arm (Figure 13) and turn clockwise 16 revolutions.
- N. Re-mount light head.

**NOTE:** Flat side of snubbing pins should face allen screws .

- O. Place yoke cap on yoke and check balance of light. Adjust (using gas tool) if necessary.

**NOTE:** Equal force (or up to twice as much force DOWN) should be required to move light up or down.

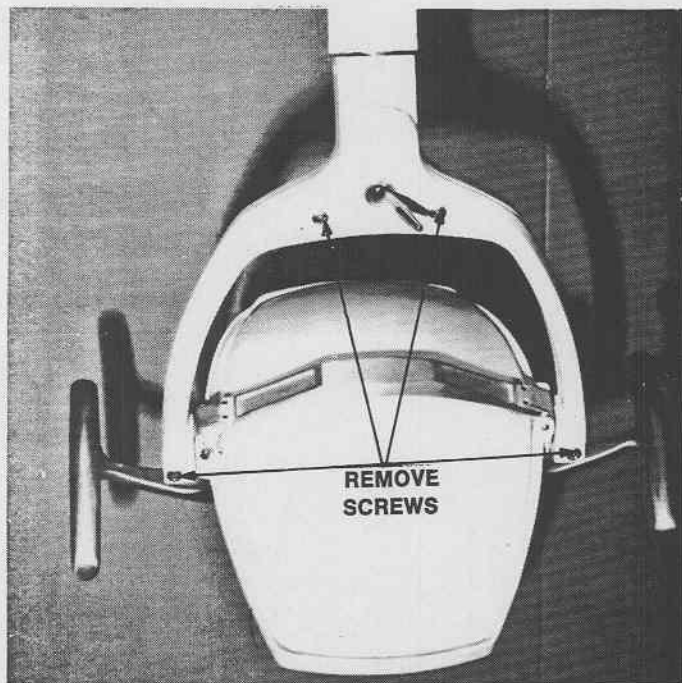
- P. Route wires back through arm (as previously installed ensuring wires are in their channels) to head, replacing plastic sleeve and knuckle cover. Do not pinch wires.

**CAUTION:** Inspect re-wiring carefully to prevent damage to wire, especially at arm joints.

- Q. Replace position screw (Figure 7).

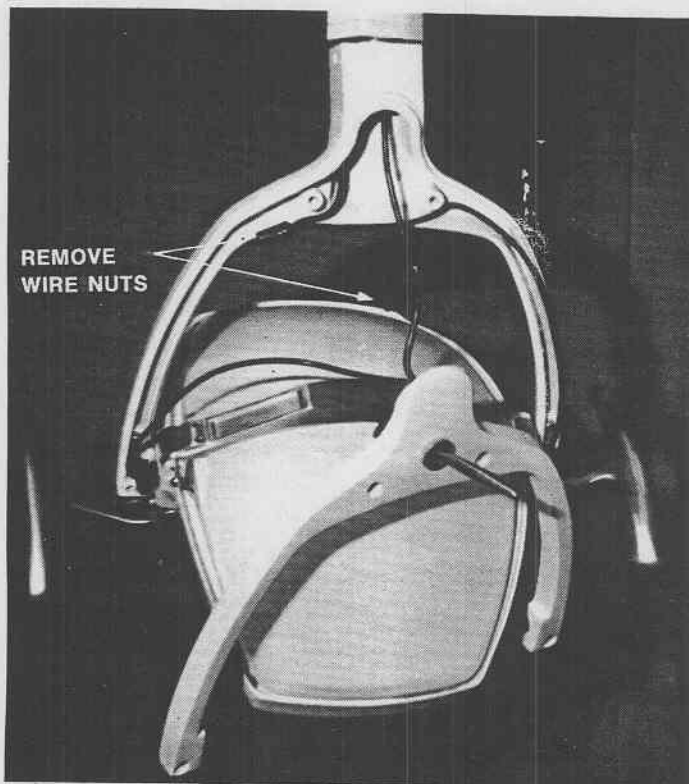
### 3.07 Replace Gas Spring in Column Mount Light

- A. Disconnect all power to light.
- B. Disassemble light yoke by removing four screws (Figure 21).



**FIGURE 21—DISASSEMBLING YOKE**

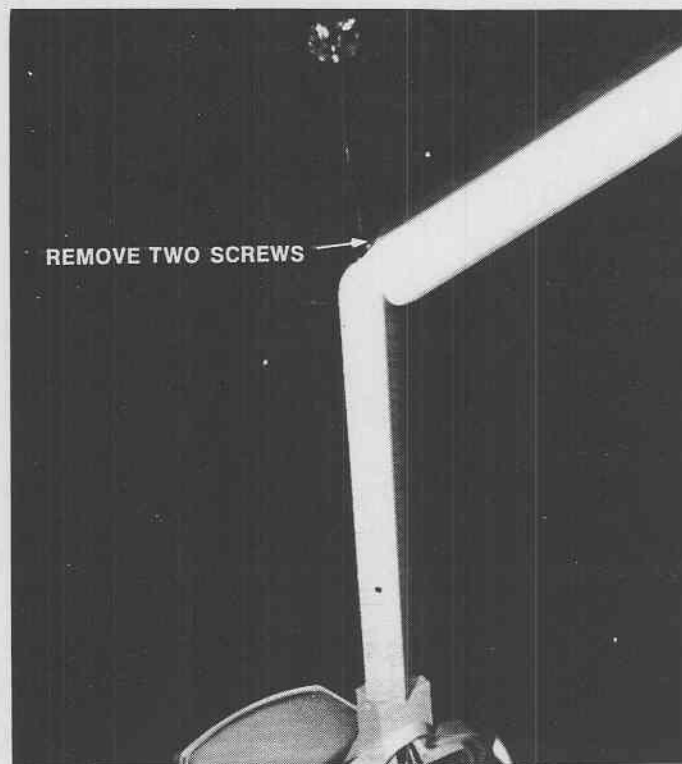
- C. Locate and remove two wire nuts from wires leading from front arm (Figure 22).



**FIGURE 22—DISCONNECT WIRES**

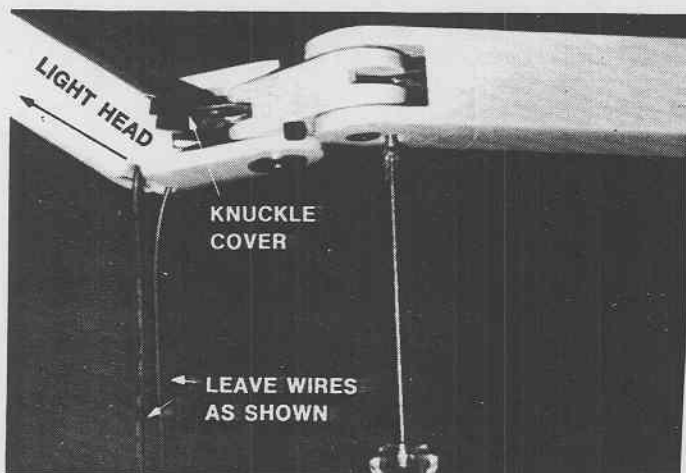
- D. Remove light head with arm by removing two screws at top of arm joint (Figure 23).

**NOTE:** Examine position of wiring for re-assembly.



**FIGURE 23—REMOVING LIGHT HEAD AND ARM**

- E. Pull wires up through arm and leave as shown in Figure 24. Remove position screw, allowing joint to **straighten**. Pop out knuckle cover to permit access to rear of arm.



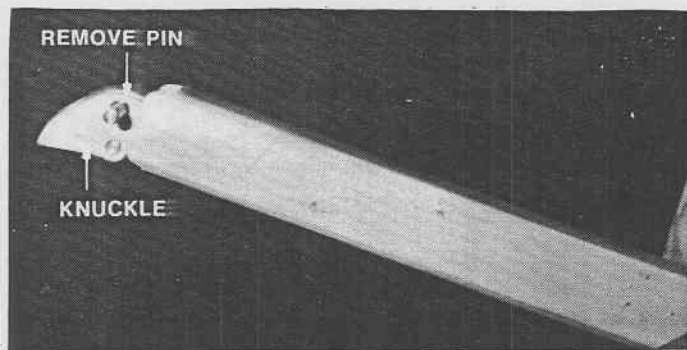
**FIGURE 24—REMOVING POSITION SCREW**

- F. Insert gas tool (provided) into rear of arm (Refer ahead to Figure 26 for gas tool insertion) and turn **counterclockwise** until arm tension is relieved (pressure is released), plus **four** extra turns.

**WARNING:** Ensure pressure has been released from gas spring.

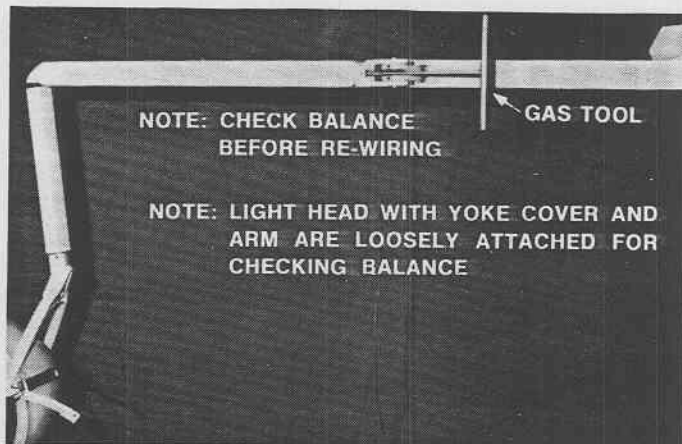
- G. Remove four screws from underside of arm (Figure 14).  
H. Punch out pin and remove knuckle (Figure 25).

**NOTE:** Pin is designed to permit removal or insertion in one direction only. Push from side with flats on pin.



**FIGURE 25—DISASSEMBLING ARM**

- I. Perform procedure in paragraphs 3.06 K and L.  
J. Insert gas tool into rear of arm (Figure 26) and turn clockwise 16 revolutions.



**FIGURE 26—ACTIVATING THE GAS SPRING**

- K. Temporarily attach light head and arm, then check balance of light. Adjust, using gas tool, if necessary.

**NOTE:** Equal force (or up to twice as much force **DOWN**) should be required to move light up or down.

- L. Route wires back through arm (as previously installed ensuring wires are in their channels) to head, replacing knuckle cover. Do **not** pinch wires.

**CAUTION:** Inspect re-wiring carefully to prevent damage to wire, especially at arm joints.

- M. Replace position screw (Figure 24).  
N. Remount light head and yoke cover.

### 3.08 Replace Gas Spring in Track Mount Light

- A. Disconnect all power to light.
- B. Pull out dimmer switch, locate and remove two wire nuts from wires leading from front arm (Figure 27).

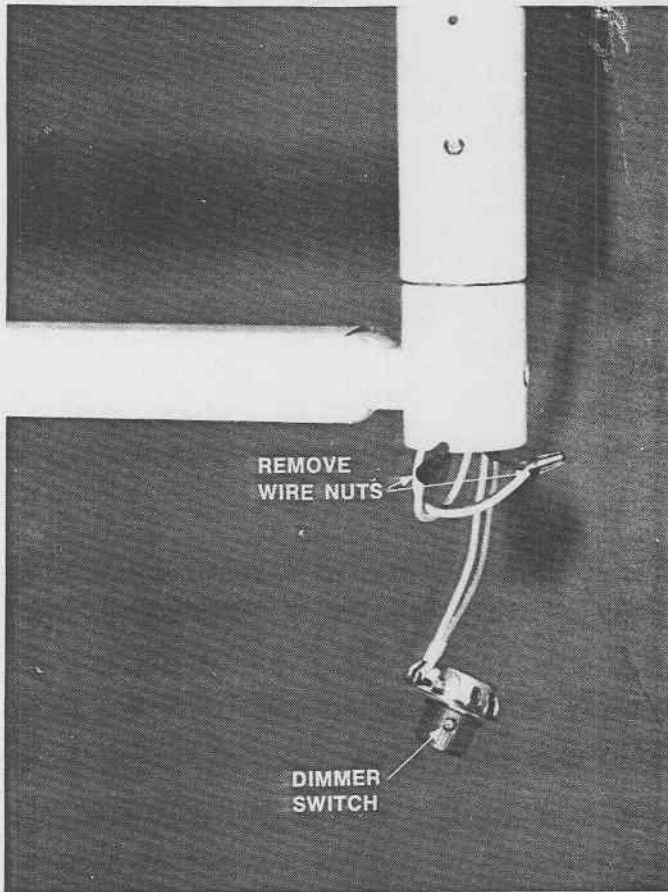


FIGURE 27—DISCONNECTING WIRES

- C. Pull out wires as shown in Figure 28.



FIGURE 28—REMOVING WIRES

- D. Straighten arm as in Figure 29, and insert gas tool (provided) through hole in column to engage gas spring. Turn counterclockwise until arm tension is relieved (pressure is released), plus **four** extra turns.



FIGURE 29—RELEASING PRESSURE ON GAS SPRING

**WARNING:** Ensure pressure has been released from gas spring.

- E. Remove four screws from underside of arm shown in Figure 28.
- F. Punch out pin as shown in Figure 30, allowing arm to come off (Figure 31).

**NOTE:** Pin is designed to permit removal or insertion in one direction only. Push from side with flats on pin.

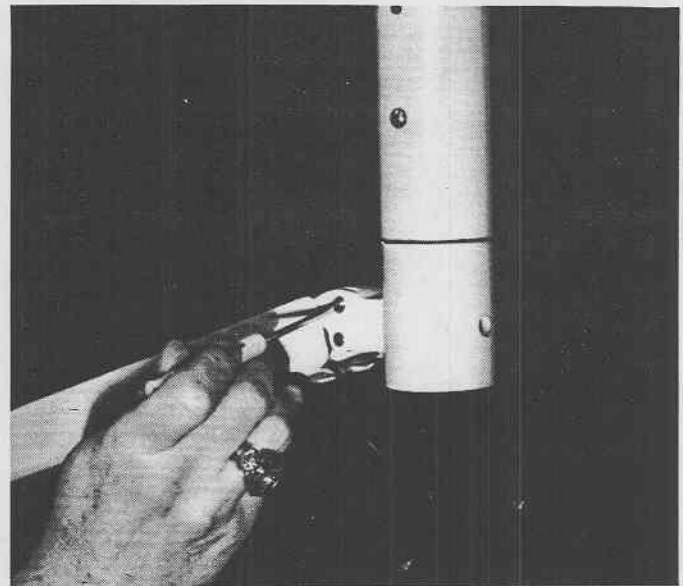
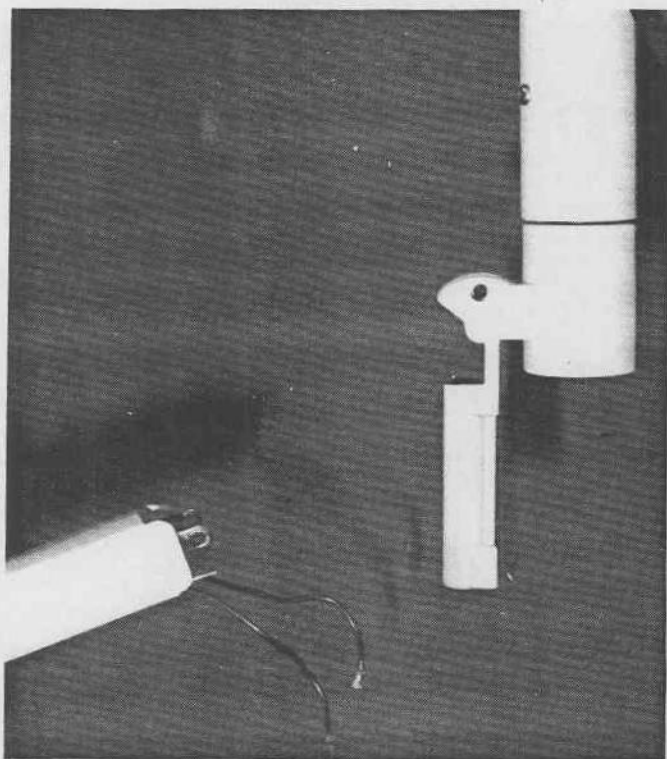


FIGURE 30—REMOVING PIN



**FIGURE 31—REMOVING ARM**

- G. Slide cover off arm and replace gas spring. Refer to Figure 18 for a similar replacement procedure.

**NOTE:** Examine position of wiring for re-assembly.

- H. Perform procedure in paragraph 3.06, L and M. (Figures referred to in these paragraphs show similar, not exact, operations.)
- I. Check balance of light. Adjust (using gas tool) if necessary.

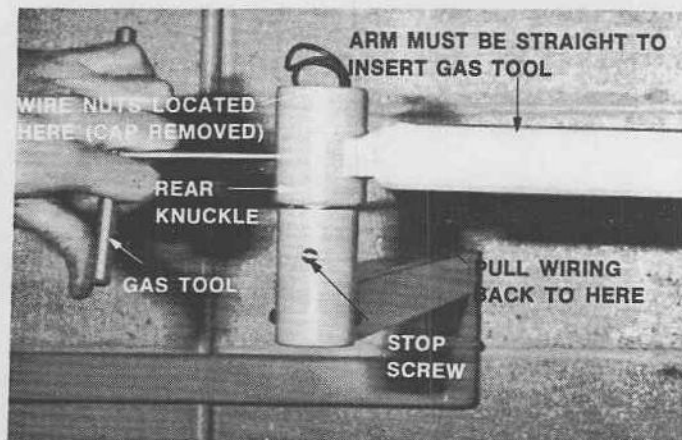
**NOTE:** Equal force (or up to twice as much force DOWN) should be required to move light up or down.

- J. Route wires back to knuckle (as previously installed) ensuring wires are in their grooves. Do **not** pinch wires.

**CAUTION:** Inspect re-wiring carefully to prevent damage to wire, especially at joints.

### 3.09 Replace Gas Spring in Wall Mount Light

- A. Disconnect all power to light.
- B. Pop out cap, locate and remove two wire nuts (Figure 32). Pull out wiring as indicated.



**FIGURE 32—RELEASING PRESSURE ON GAS SPRING**

- C. Straighten arm as in Figure 32 and insert gas tool through hole to engage gas spring. Turn counterclockwise until arm tension is relieved (pressure is released), plus **four** extra turns.
- D. Follow procedure described in paragraph 3.08 E through J for **two** arm LFWII **only**. The **three** arm LFWII and LFLII should follow procedure described in paragraph 3.06 I through Q.

### 3.10 Replace Front Arm

#### A. ALL MODELS

- Remove the Yoke Cap retained by four screws (Figure 4).
- Remove two wire nuts that are attached to the two wires coming from front arm (Figure 5).

#### B. HEAD REMOVAL

##### MODELS LFI, LFL, LFW (3) ONLY

- Loosen the two set screws in yoke near snubbing pins (Figure 4).
- Remove top and bottom snubbing pin (Figure 5) and slide the Yoke and Head Assembly out of the knuckle.

##### MODELS LFC, LFC-D, LFT, LFT-D, LFW (2) ONLY

- Remove the Down Arm/Yoke Head Assembly from the front knuckle by removing two screws (Figure 23).

#### C. FRONT ARM REMOVAL

##### MODELS LFW (2), LFW (3), LFL ONLY

- Remove the cap from the top of rear knuckle (Figure 32). Remove the two wire nuts that are attached to the two wires coming from front arm.
- Remove the stop screw from the rear arm joint (Figure 32). Lift the front arm out of the rear arm.



### MODELS LFTII, LFTII-D ONLY

- Pull out the dimmer control from the rear knuckle (Figure 1). Remove the two wire nuts that are attached to the two wires coming from the front arm.
- Remove the stop screw and the set screw in the arm mounting collar (Figure 1). Unscrew the arm mounting collar from the column (counterclockwise) as viewed from below).
- Disconnect the two exposed mate-n-lok connectors, which permits arm removal.

### MODELS LFII, LFCII, LFCII-D ONLY

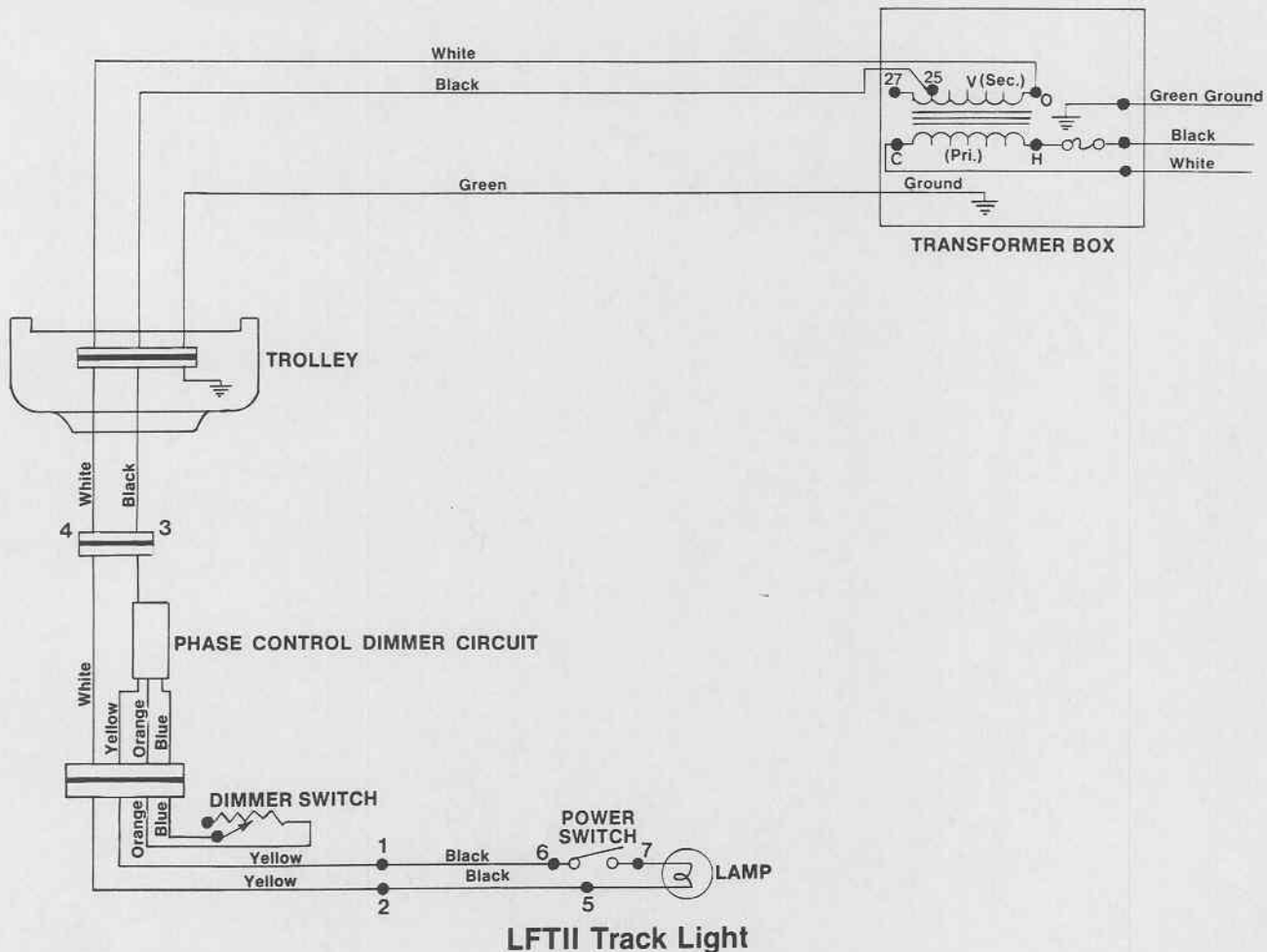
- Loosen the two set screws in the arm adapter near the snubbing pins (Figure 8).
- Remove the top and bottom snubbing pin and slide the front arm off the arm adapter.

### D. ALL MODELS

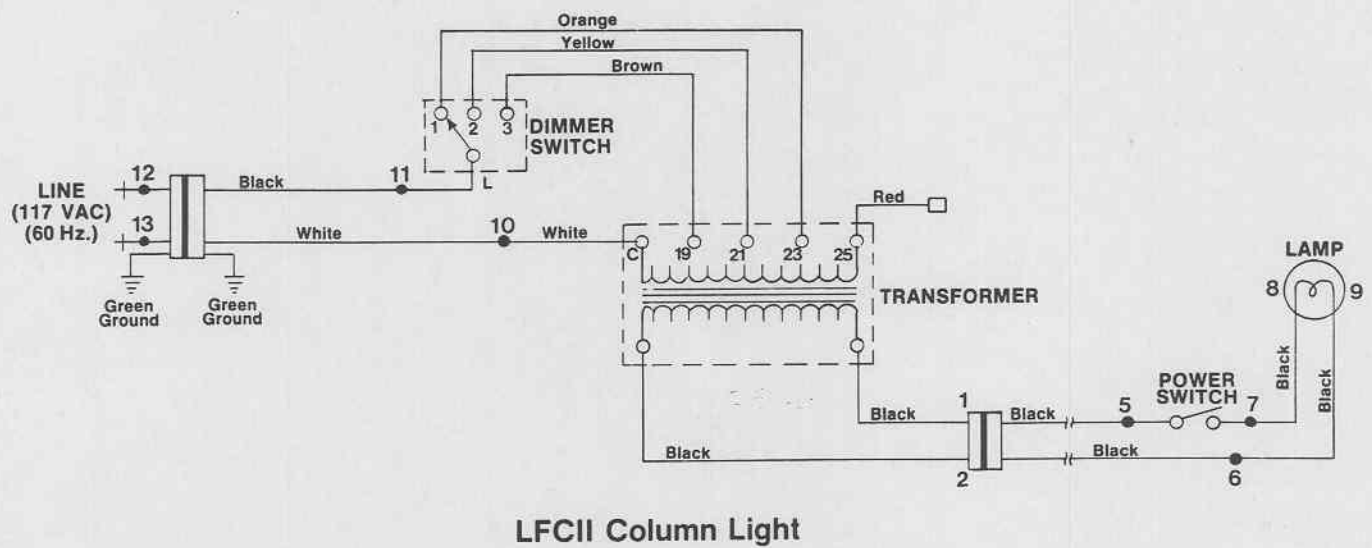
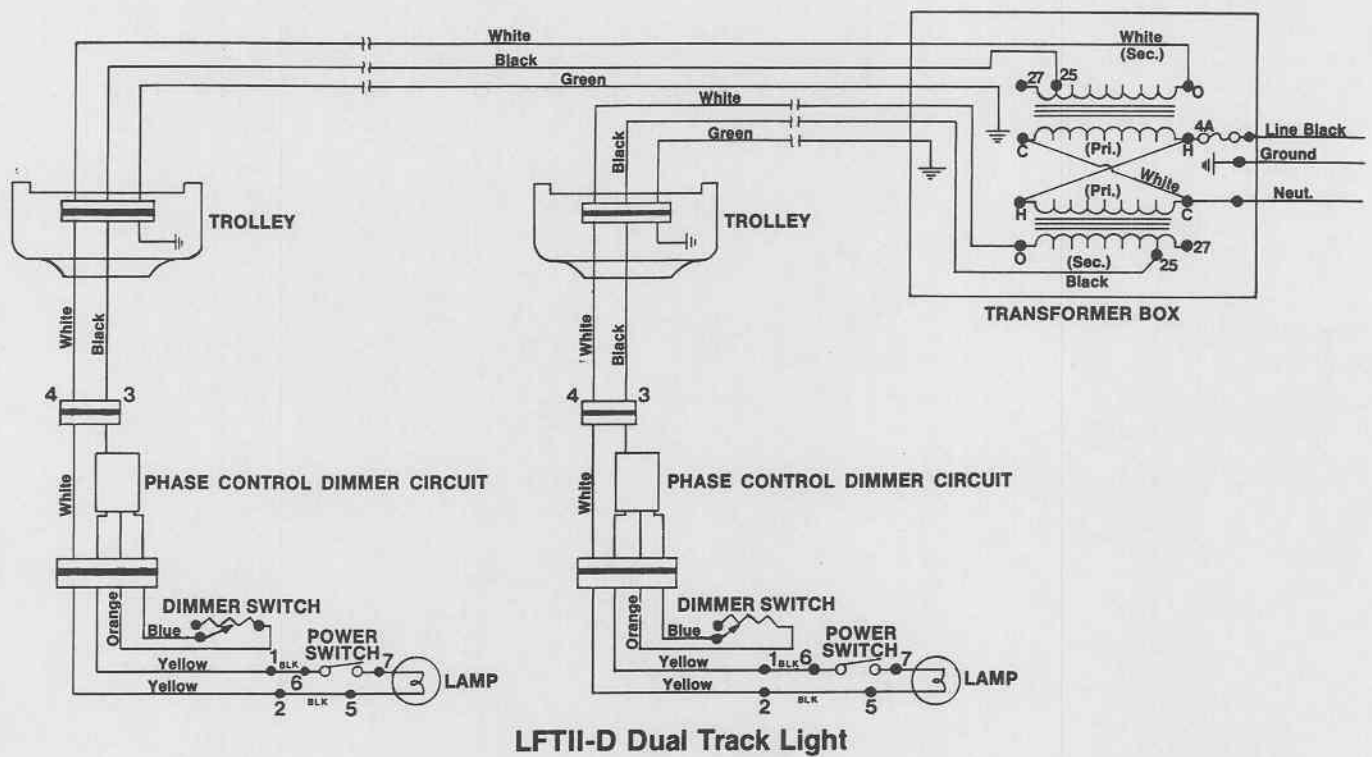
- Reverse procedure for installing new arm.

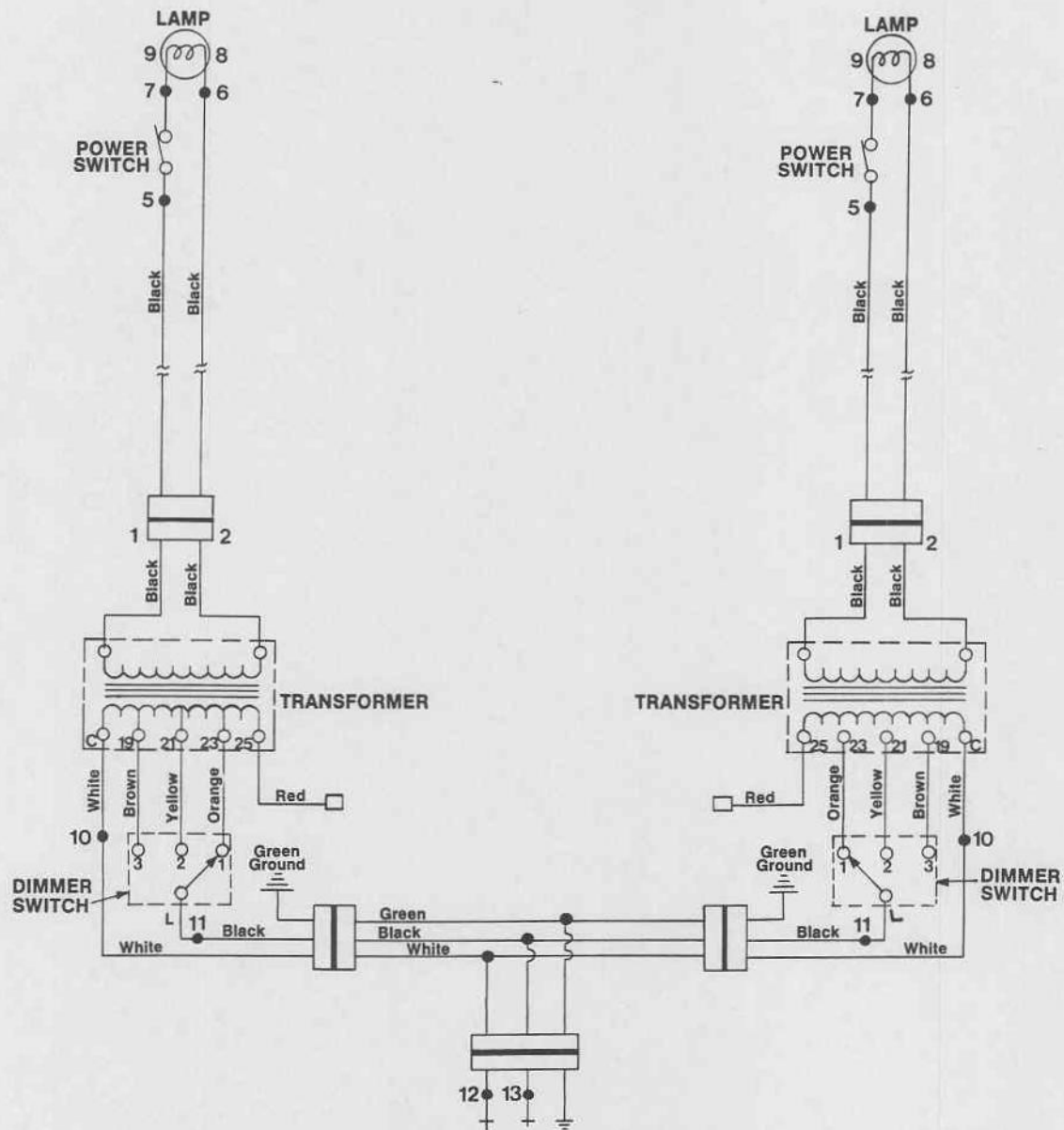
**NOTE: FOR ARM BALANCE ADJUSTMENT, REFER TO LFII INSTALLATION AND ADJUSTMENT INSTRUCTIONS, YL3-096035.**

## 4. WIRING DIAGRAMS









LFCII-D Dual Column Light





FOR MODELS

**LF II**

**LFT II**

**LFT II-D**

**LFC II**

**LFC II-D**

**LFW II**

**LFL II**

# **light fantastic II<sup>®</sup>**

## **parts list**

**Pelton  
&  
Crane**

P.O. BOX 3864 CHARLOTTE, N.C. 28203



# LIGHT FANTASTIC II PARTS LIST

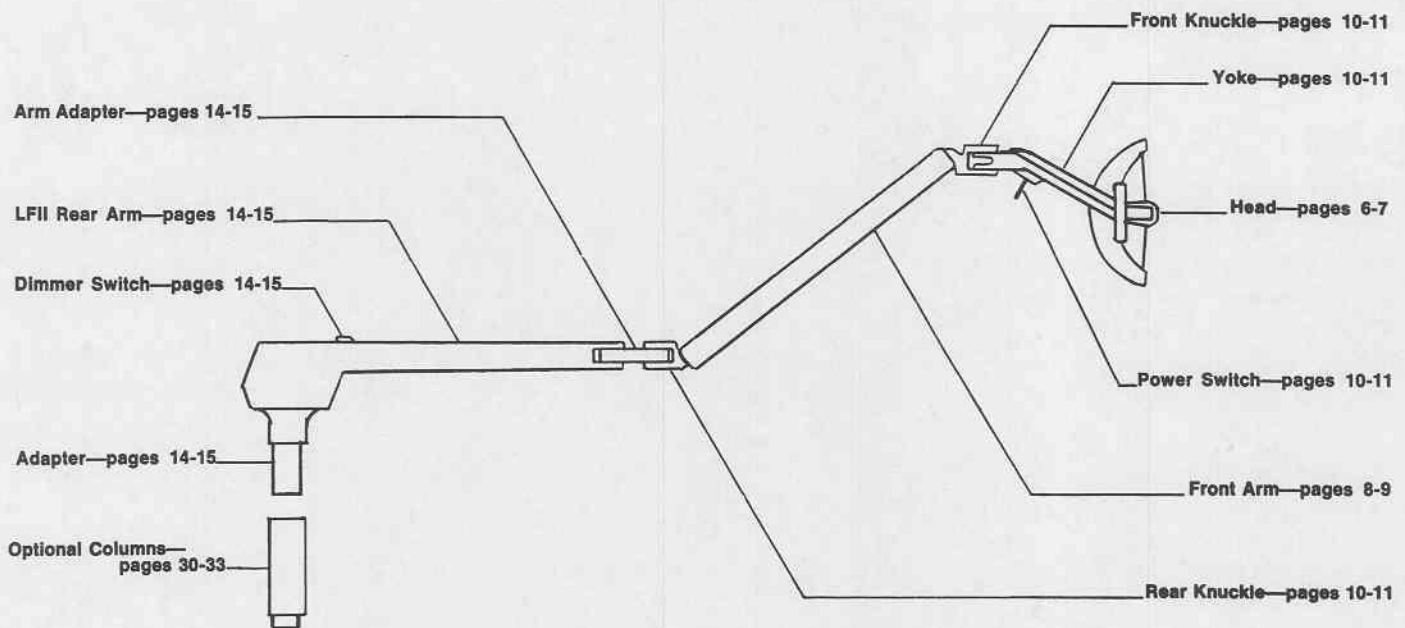
CONTENTS	PAGE
Available Light Fantastic II Literature .....	1
<b>INDEX DRAWINGS</b> .....	<b>2-5</b>
LFII Unit and LFL Lab Lights Index .....	2
LFCII and LFCII-D Column Lights Index .....	3
LFTII and LFTII-D Track Lights Index .....	4
LFWII(2) and LFWII(3) Arm Wall Lights Index .....	5
<b>STANDARD LIGHT FANTASTIC II PARTS</b> .....	<b>6-29</b>
LFII Head (All Models) .....	6-7
LFII Front Arm (All Models) .....	8-9
Front Arm Assemblies and Yoke	
[LFII Unit, LFWII(3), LFLII] .....	10-11
Front Arm Assemblies, Down Arm and Yoke	
[LFCII, LFCII-D, LFTII, LFTII-D, LFWII(2)] .....	12-13
Rear Arm [LFII Unit] .....	14-15
Rear Arm [LFCII and LFCII-D] .....	16-17
Rear Arms [Lab and Wall Lights] .....	18-19
Tripod, Cover and Columns [LFCII, LFCII-D] .....	20-21
Standard Track [LFTII] .....	22-23
Standard Dual Track [LFTII-D] .....	24-25
Trolleys [LFTII and LFTII-D] .....	26-27
Mounting Box [LFWII(2), LFWII(3), LFLII] .....	28-29
<b>ACCESSORIES</b> .....	<b>30-37</b>
LFII Optional Columns and Adapters .....	30-33
LFWII(2), LFWII(3), LFLII Optional Power Cords .....	34
LFII Optional Wall Mounting Bracket .....	35
LFCII, LFCII-D Optional Mounting Plate .....	36
LFTII, LFTII-D Optional Sub-Pallet .....	37

## AVAILABLE LIGHT FANTASTIC II LITERATURE

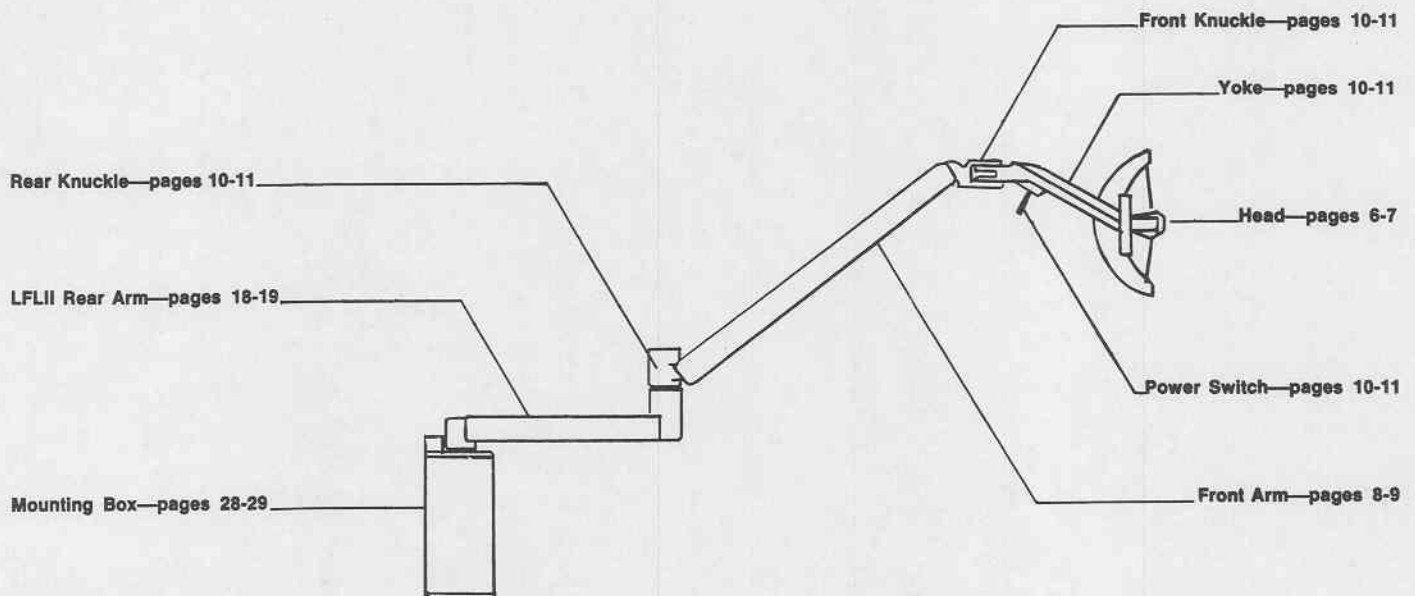
Suspended Ceiling Kit (Kit HA9-001372) .....	YL2-094210
Optional Column Mount Plate .....	YL2-094148
Installation and Adjustment Instructions .....	YL3-096035
Use and Care Manual .....	YL3-096037
Installation of LFTII on Tracks .....	YL3-096048
Modification of Light Intensity for LFTII on LFTB Track	
(Kit HB9-016928) .....	YL3-096045
Modification of Light Intensity for LFTII on LFTN Track	
(Kit HB9-016929) .....	YL3-096046
Modification of Light Intensity for LFTII on LFT+ Track	
(Kit HB9-016930) .....	YL3-096047
Light Fantastic II Parts List .....	YL8-096064
Repair Manual .....	YL8-096065
Lab Light Specifications .....	YL8-096114
LFII Unit Mount Specifications .....	YL8-096115
LFCII Specifications .....	YL8-096116
LFTII Specifications .....	YL8-096117
LFWII Specifications .....	YL8-096121
Field Replacement of LFII Front Arm Screws .....	YL3-096151

# LFI Unit and LFLII Lab Light Index

## LFI Unit Light (HB7-014124)

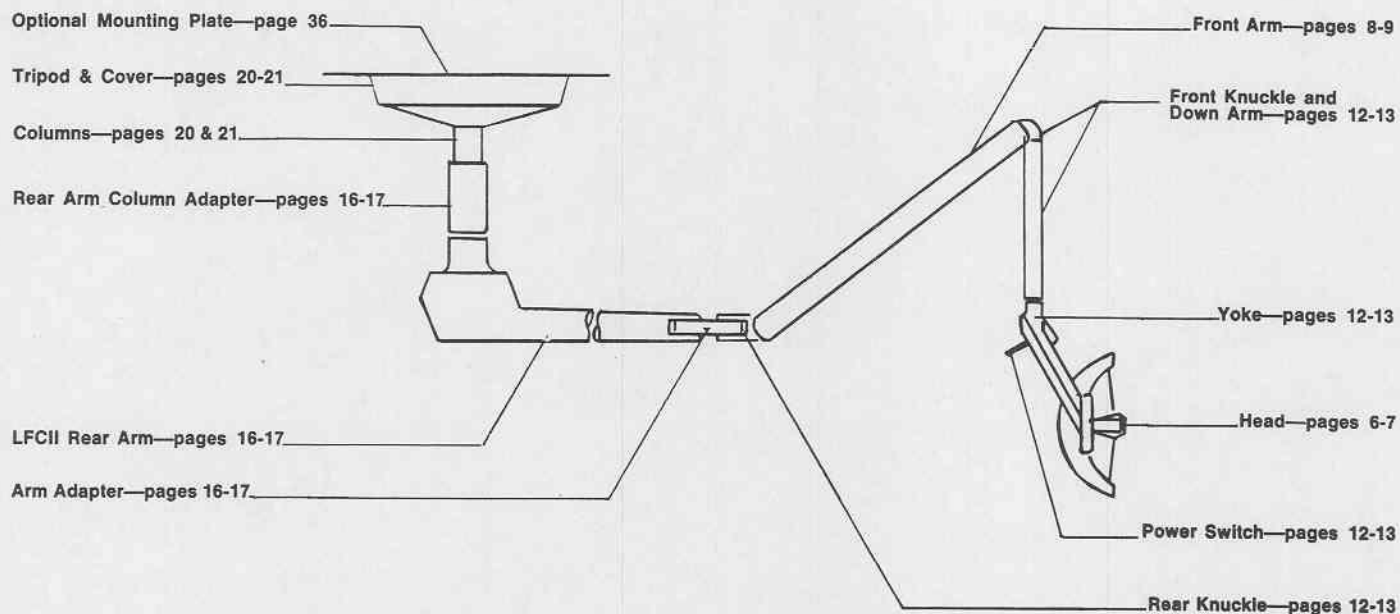


## LFLII Lab Light (HB7-014781)

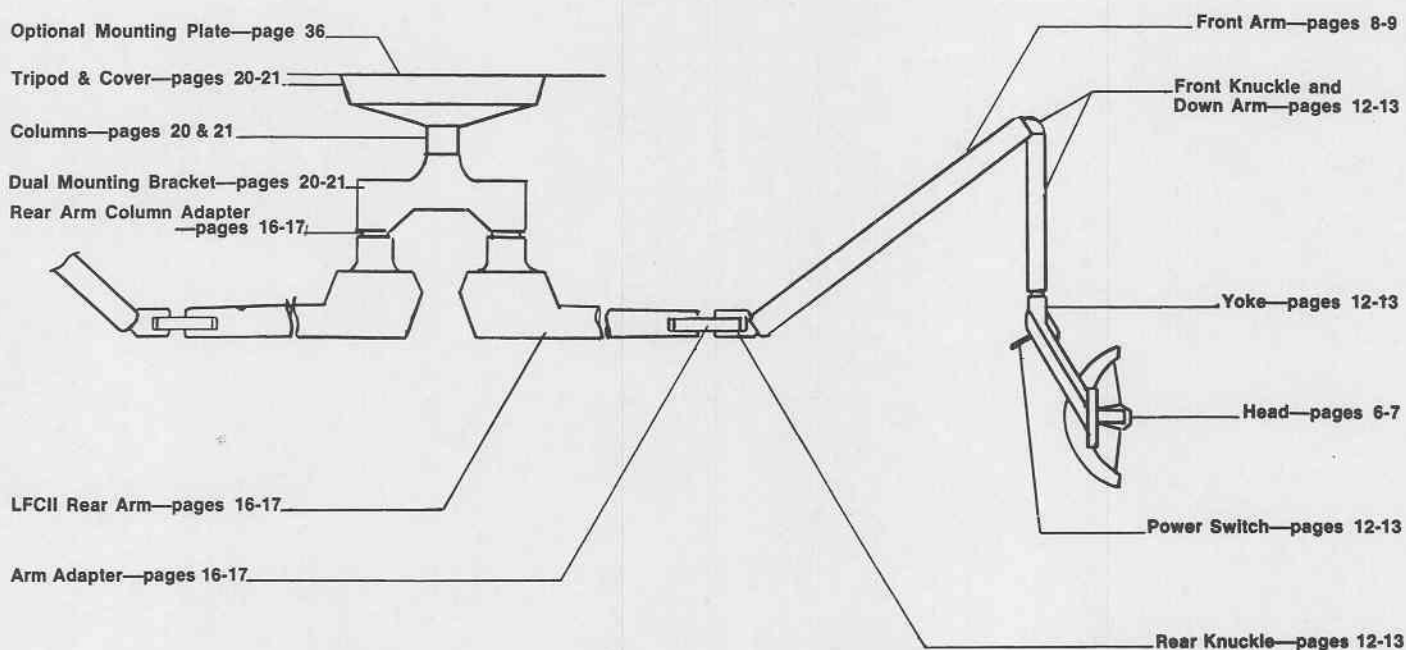


# LFCII and LFCII-D Column Light Index

## LFCII Column Light (HB7-014777)

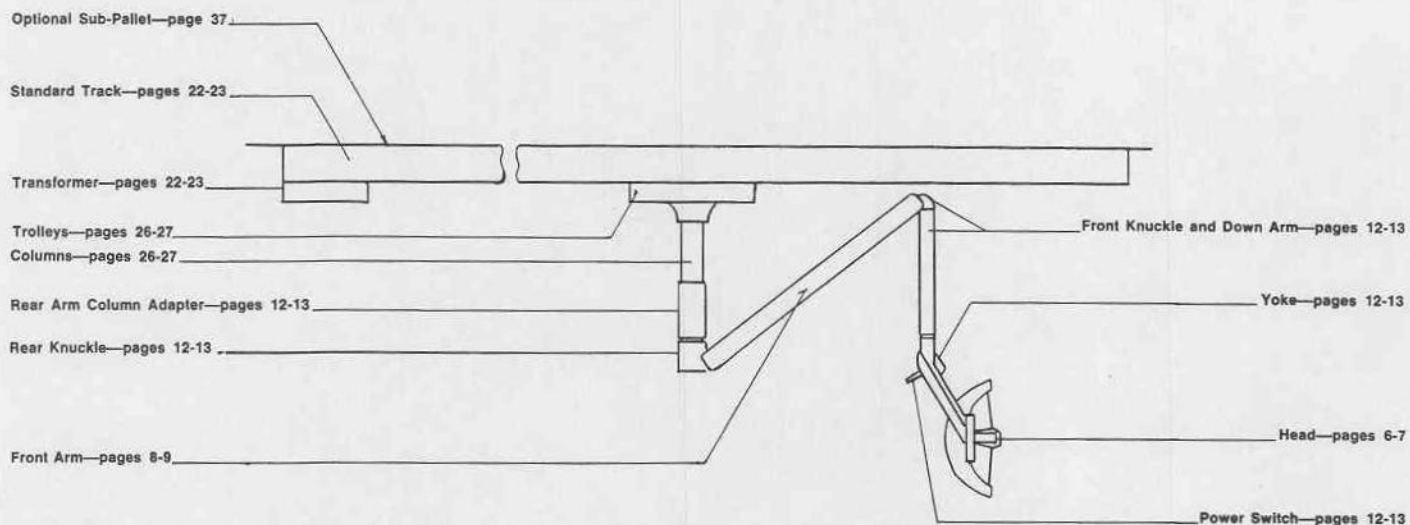


## LFCII-D Dual Column Light (HB7-014778)

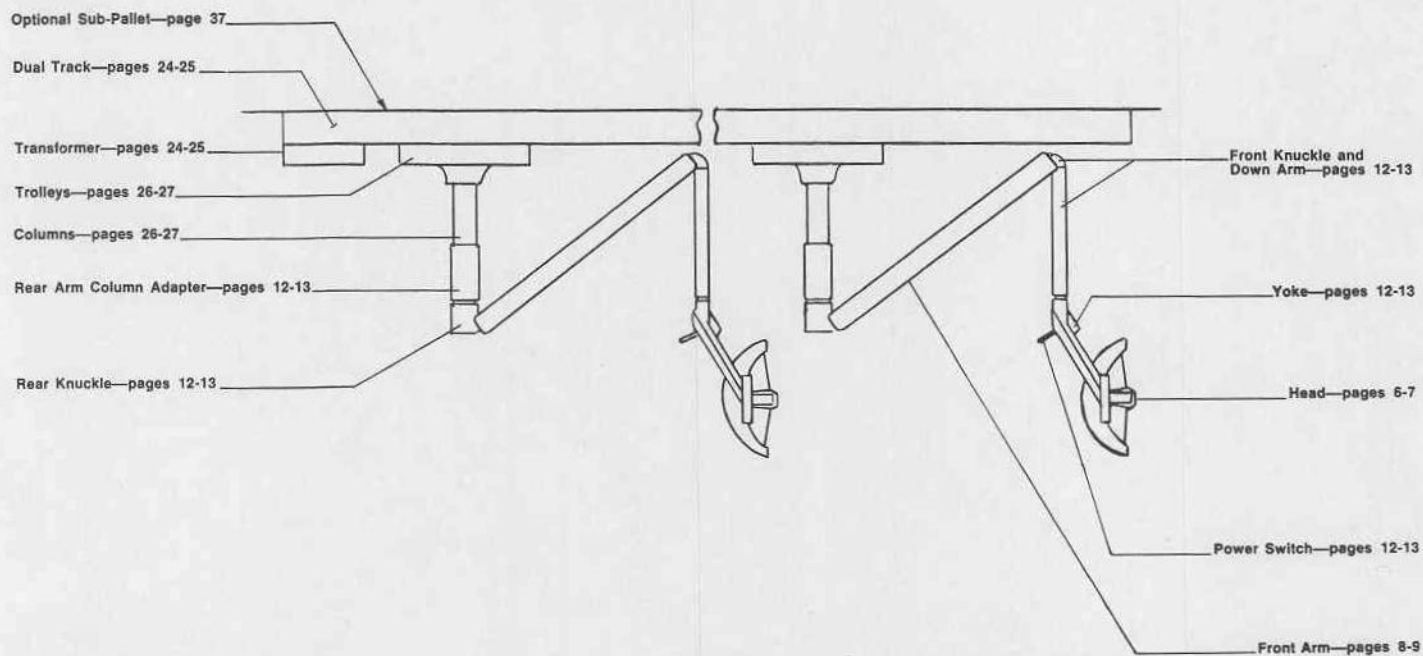


# LFTII and LFTII-D Track Light Index

## LFTII Track Light (HB7-014779)

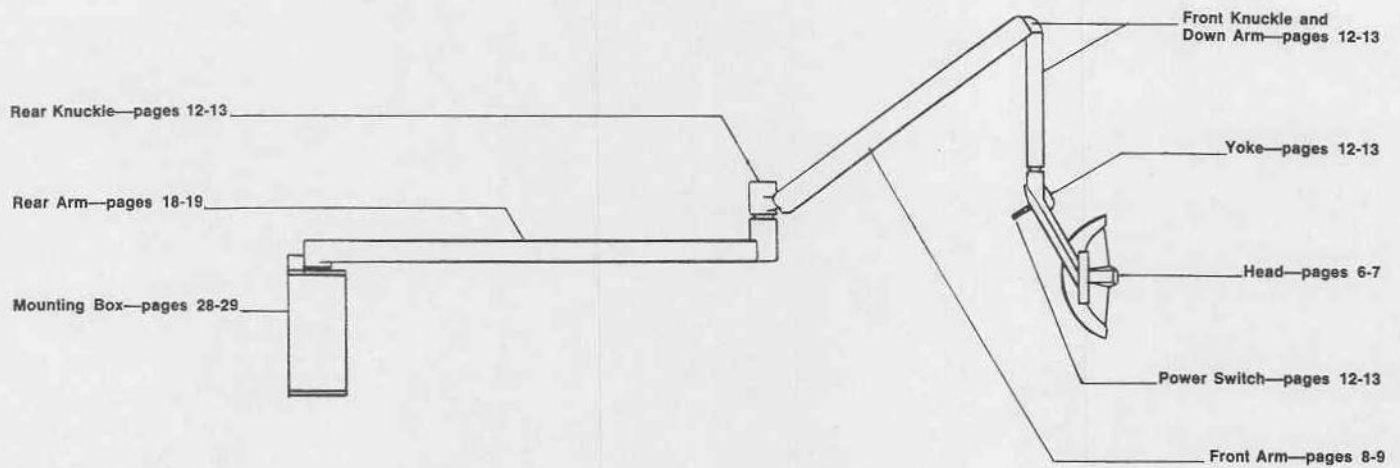


## LFTII-D Dual Track Light (HB7-014780)

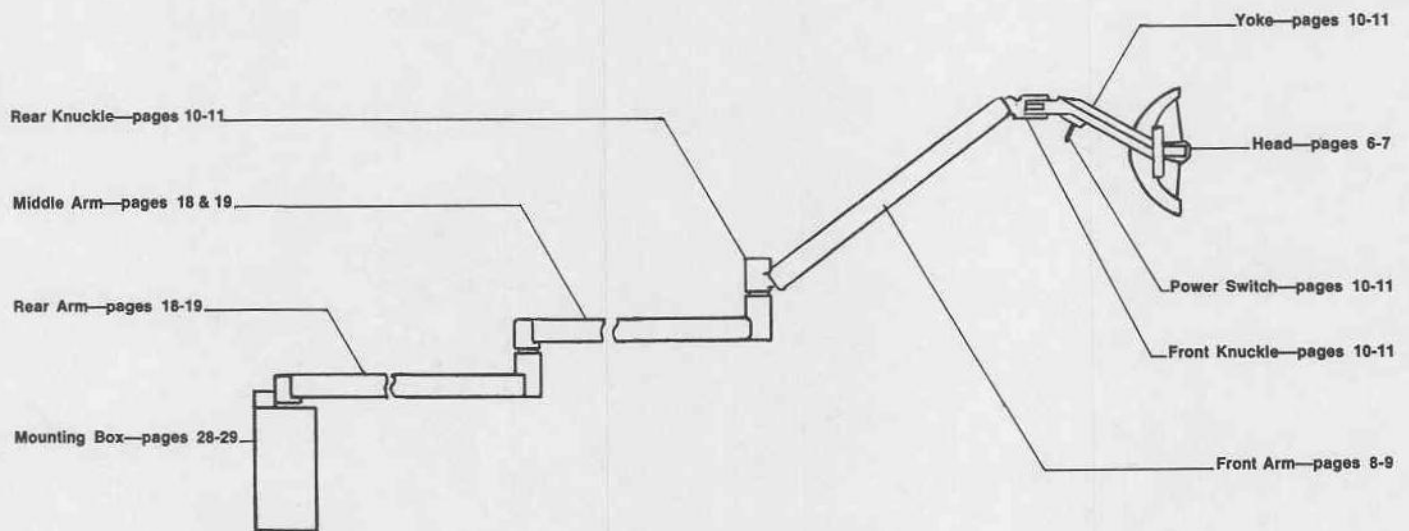


# LFWII(2) and LFWII(3) Arm Lights Index

## LFWII (2) Wall Light (HB7-014782)



## LFWII (3) Wall Light (HB7-014784)

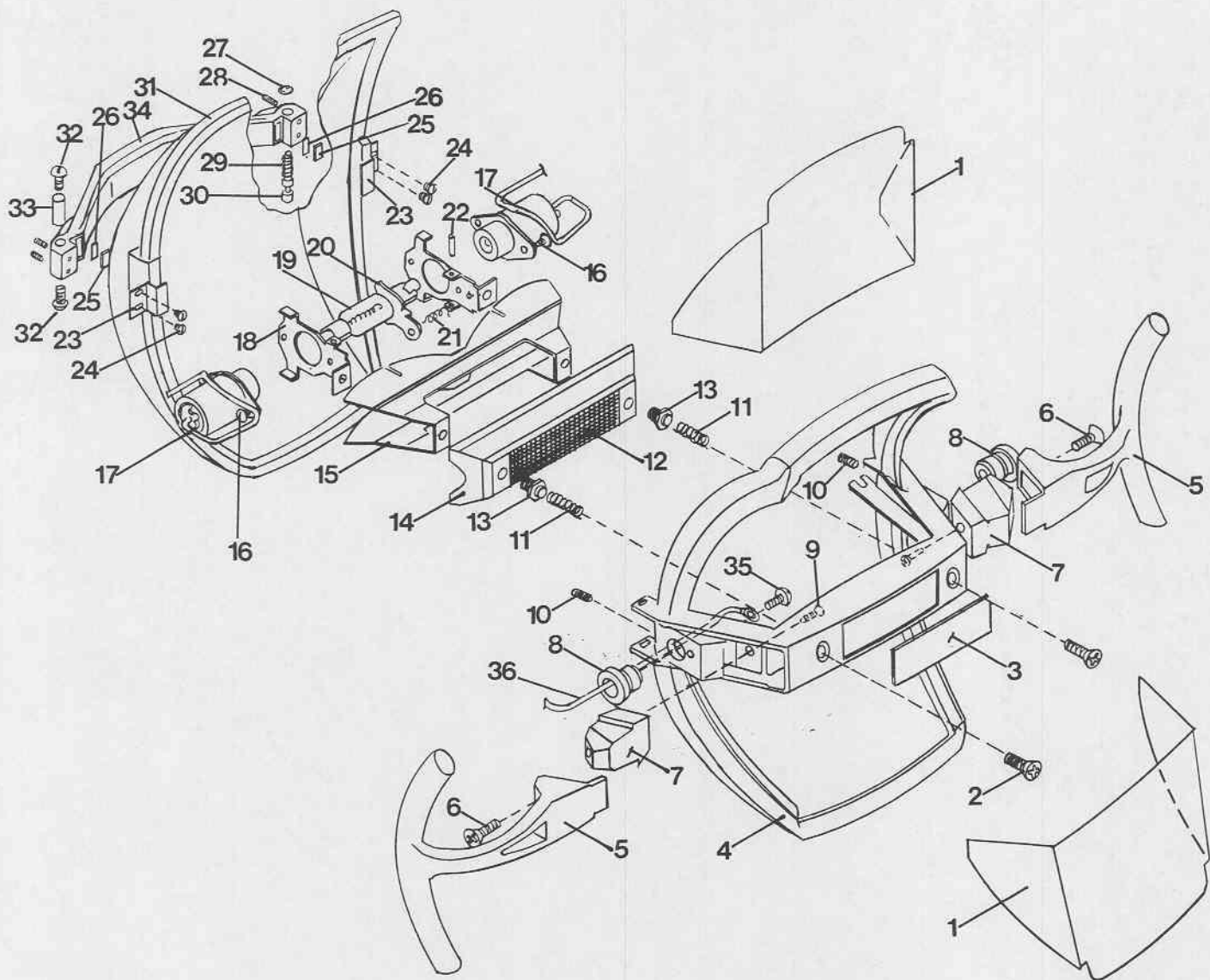




# STANDARD LIGHT FANTASTIC II PARTS

## LFII Head Assembly HB6-017741

(All Models)

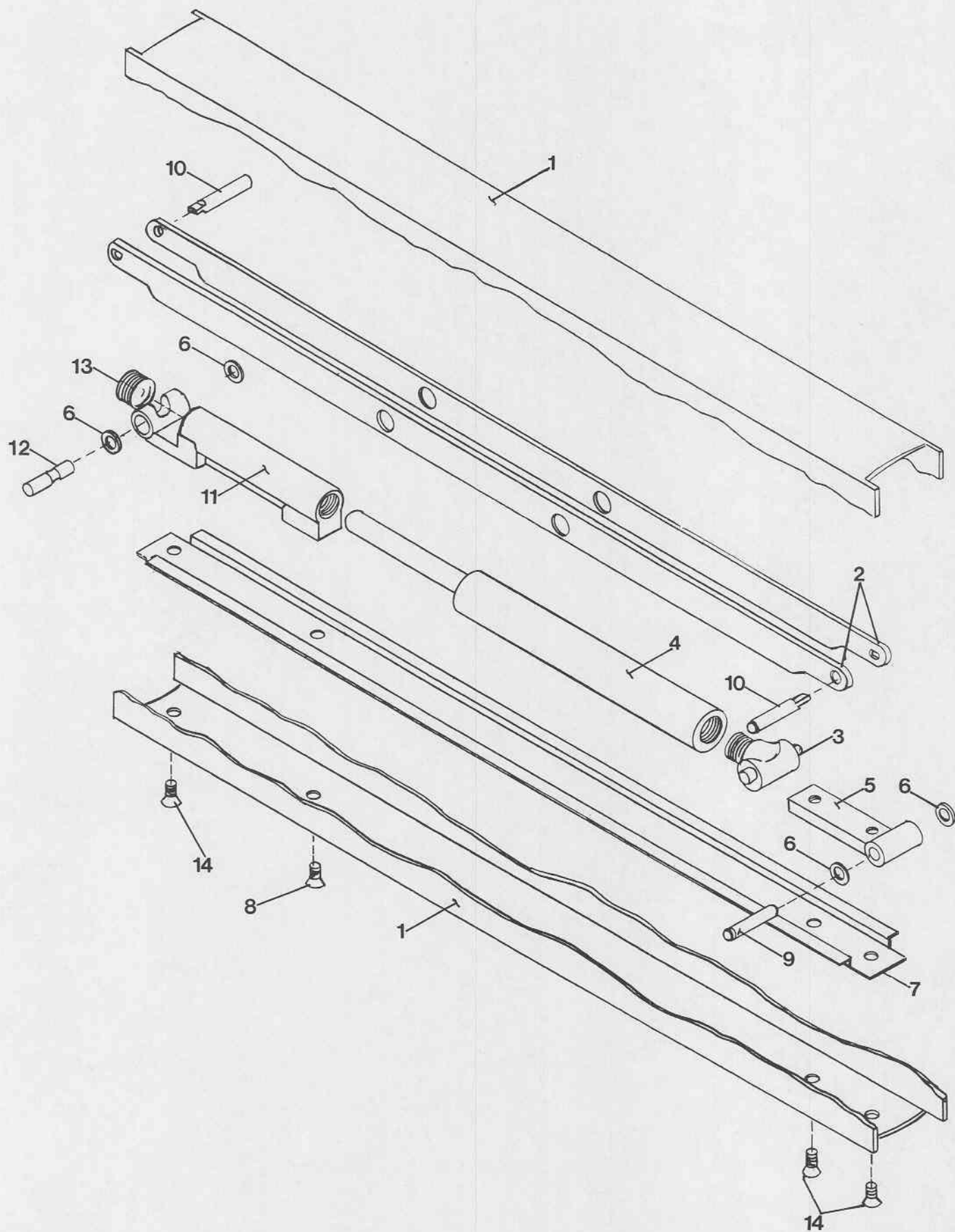


# LFII Head Assembly (All Models)

INDEX	PART NO.	DESCRIPTION
	HB6-017741	LIGHT FANTASTIC II HEAD ASSEMBLY, No. 1 - 34
1.	HB5-015310	Shield
2.	XD1-090642	Screw - 6 - 32 x 3/4" phillips oval head
3.	HB3-017206	Logo
* 4.	HB6-016753	Frame and Cushion
	HB6-017181	Frame and Cushion (CSA only)
5.	HB4-015314	Handle
6.	XD1-090704	Screw - 10 - 24 x 5/8" phillips oval head
7.	HB4-015565	Insulator
8.	HB3-014901	Pivot - Reflector
9.	XD1-090648	Screw - 10 - 24 x 1/2" phillips flat head
10.	XD1-090253	Screw - 10 - 32 x 1/4" hex socket set
11.	HB2-015160	Spring - Focus
	HB6-015584	LAMP HOLDER ASSEMBLY, No. 12 - 22
12.	HB5-014893	Screen
13.	HB5-014890	Adapter Screw
14.	HB5-014894	Shield - Outer
15.	HB5-014892	Shield - Inner
16.	XE1-090428	Screw - 6 - 32 x 1/8" round head machine
17.	HB3-015208	Lamp Socket
18.	HB5-014891	Holder - Socket
19.	HB9-017133	Lamp Replacement Package
20.	HB5-015577	Lamp Removal Lever
21.	HB2-015597	Spring - Lamp Removal
22.	HB2-016115	Roll Pin
23.	HB5-015863	Clamp - Reflector
24.	XD1-090679	Screw - 6 - 32 x 3/16" phillips pan head
25.	HB5-015899	Reflector Cushion
26.	HB5-015458	Pressure Pad
27.	HB2-015503	Retaining Ring
28.	XD1-090245	Screw - 6 - 32 x 5/16" socket set
29.	HB2-015505	Spring - Release
30.	HB5-014707	Pin
31.	HB3-014062	Reflector
	HB9-017134	Reflector Cleaning Kit
	HB9-017597	Reflector Cleaning Kit (1 case)
	HB9-017598	Reflector Cleaning Kit (4 cases)
32.	XD1-090171	Screw - 6 - 32 x 7/16" phillips round head
33.	HB5-015224	Pin
34.	HB4-015861	Glass Guard
35.	XD1-090172	Screw - 8 - 32 x 3/8" round head phillips machine (CSA Only)
36.	HB6-016756	Ground Wire Assembly (CSA Only)

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# LFII Front Arm (All Models)

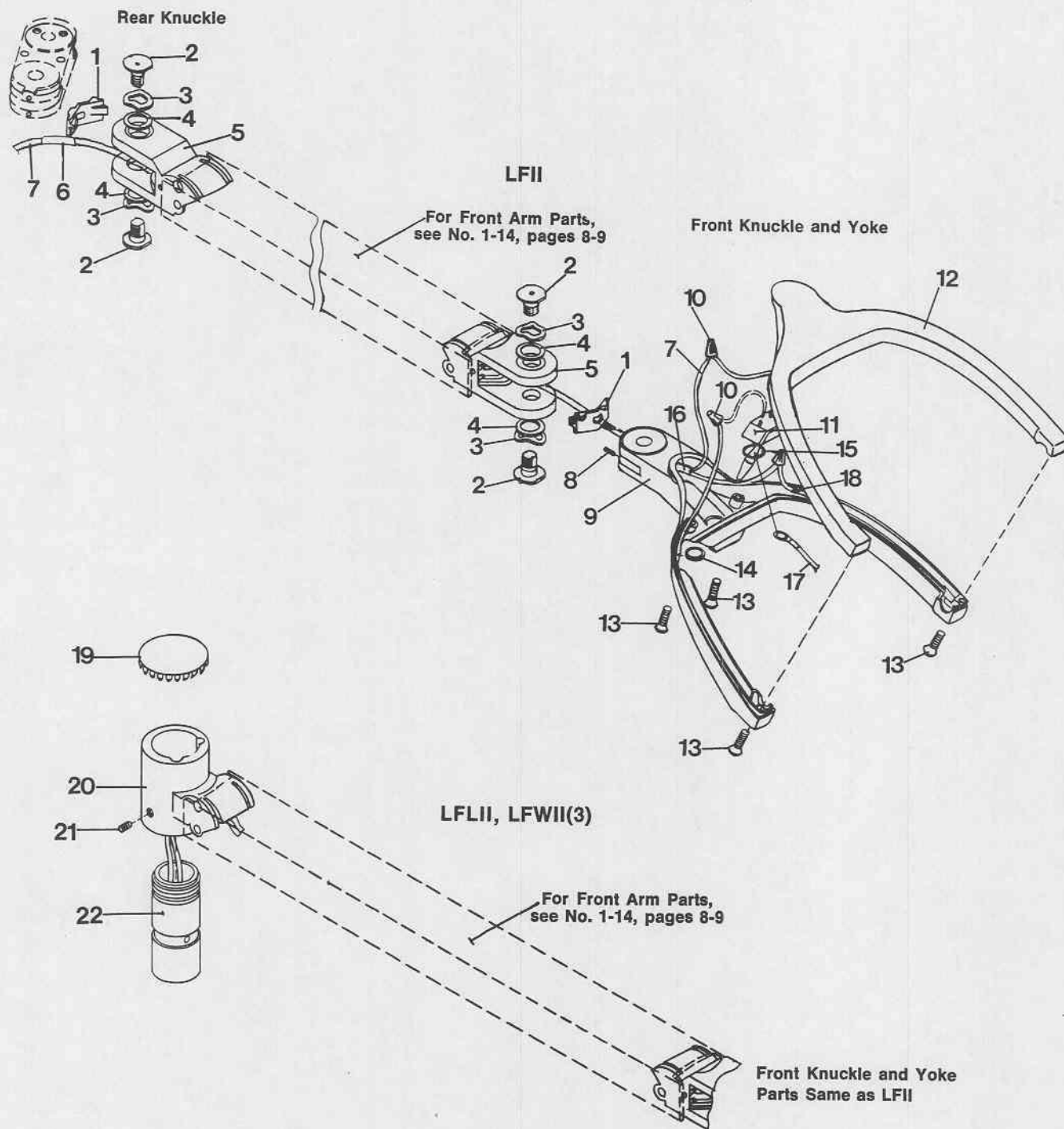


## LFII Front Arm (All Models)

INDEX	PART NO.	DESCRIPTION
1.	HB5-014527	Front Arm
2.	HB5-014537	Tie Bar
3.	HB3-014134	Anchor - Gas Spring
4.	HB9-016420	Gas Spring - 190# (LFCII, LFCII-D, LFTII, LFTII-D, LFWII (2)
	HB9-017185	Gas Spring - 170# (LFII, LFLII, LFWII (3)
* 5.	HB6-015805	Front Knuckle Support
6.	HB3-014535	Spacer
7.	HB5-014528	Raceway
8.	XD1-090721	Screw - 10 - 24 x 3/8" flathead socket cap
9.	HB3-014531	Pivot Pin - Lower Front
10.	HB5-014533	Pivot Pin - Upper
*11.	HB6-015806	Rear Knuckle Support
12.	HB5-014532	Pivot Pin - Lower Rear
13.	XD1-090650	Screw - 5/8 - 11 x 5/8" socket set
14.	XD1-090191	Screw - 10 - 24 x 1/2" flat head hex socket cap

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# Front Arm Assemblies and Yoke (LFII Unit, LFWII (3), LFLII)



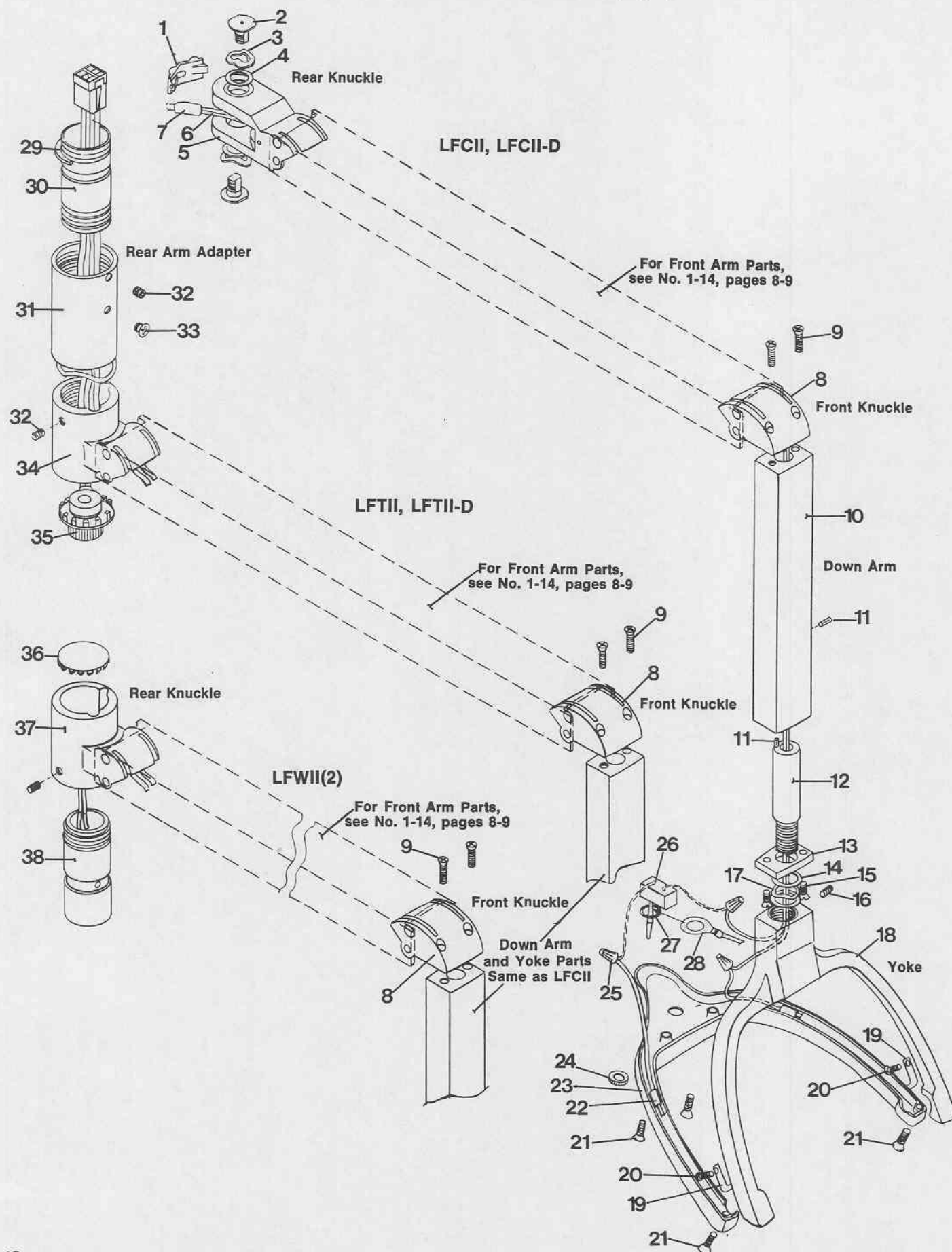


# Front Arm Assemblies and Yoke [LFII Unit, LFWII (3), LFLII]

INDEX	PART NO.	DESCRIPTION
	HB6-017532	FRONT ARM ASSEMBLY (LFII), No. 1 - 7 plus No. 1 - 14, pages 8-9
1.	HB3-014133	Cover - Knuckle
2.	HB4-016705	Snubbing Pin
3.	HB2-017186	Washer
4.	HB5-016189	Washer
* 5.	HB6-015809	Straight Knuckle
6.	H35-006749	Insulator - wire
* 7.	HB6-015766	Wiring Harness
8.	XD1-090645	Screw - 10 - 32 x 1/2" hex socket set
9.	HB4-014524	Yoke Body
10.	H32-010822	Wire Connector
*11.	H66-007096	Power Switch
12.	HB4-014523	Yoke Cap
13.	XD1-090643	Screw - 8 - 32 x 3/4" phillips oval head
14.	H45-006849	Knurl Nut
15.	XB3-090052	Lock Washer - .50 ID x .59 OD x .02 shakeproof
16.	HB5-015900	Insulator - Wire
*17.	HB6-016756	Ground Wire (CSA Only)
18.	HB5-017187	Retainer
	HB6-017531	FRONT ARM ASSEMBLY (LFLII, LFWII (3)), No. 19-22, 1-5 plus No. 1 - 14, pages 8 - 9
19.	HB4-016125	Plug
*20.	HB6-015808	Post Knuckle
21.	XD1-090253	Screw - 10 - 32 x 1/4" hex socket set
*22.	HB6-015842	Adapter and Pin

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# Front Arm Assemblies, Down Arm and Yoke (LFCII, LFCII-D, LFTII, LFTII-D, LFWII (2) )



# Front Arm Assemblies, Down Arm and Yoke [LFCII, LFCII-D, LFTII, LFTII-D, LFWII (2)]

## INDEX PART NO. DESCRIPTION

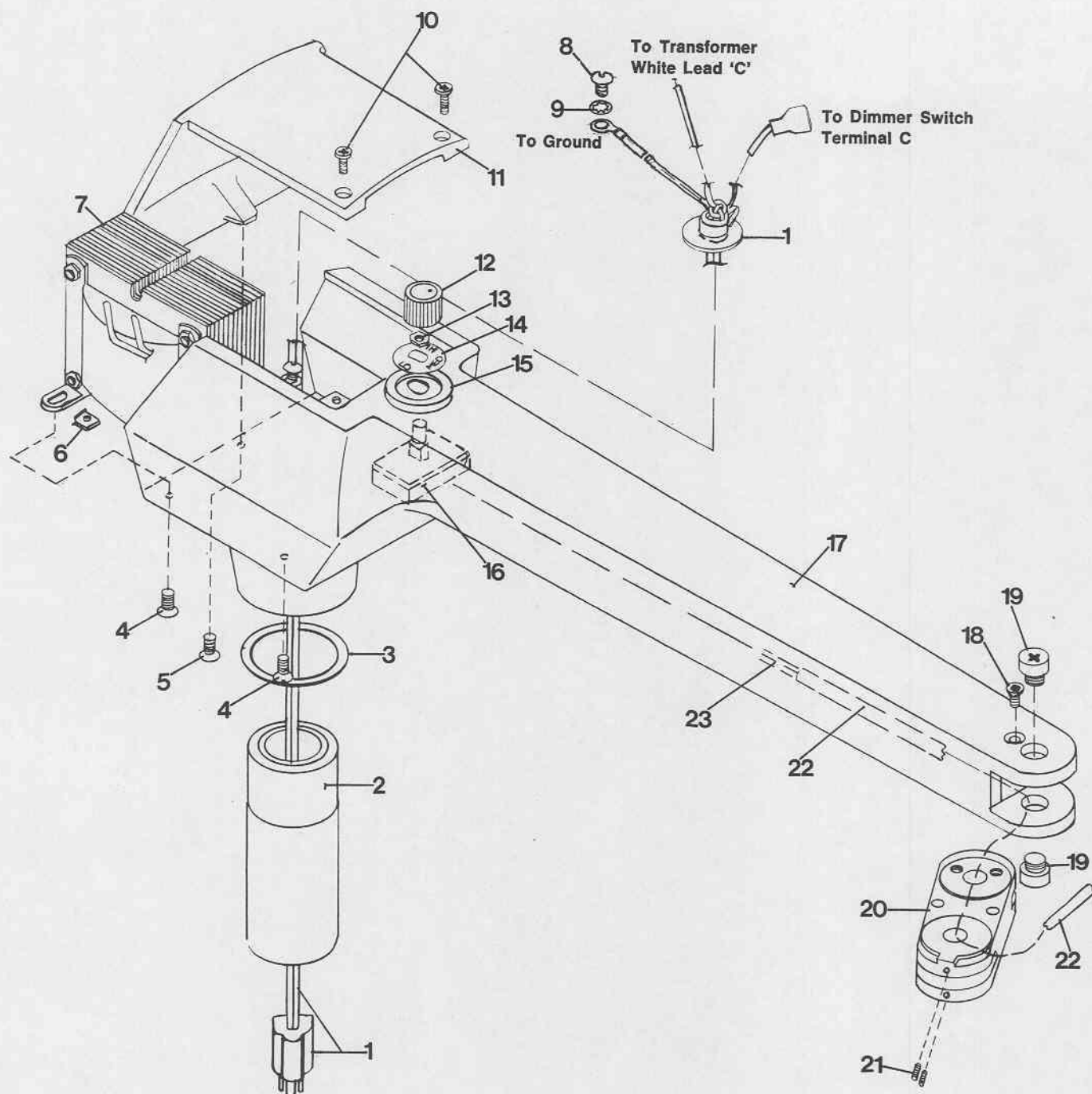
	HB6-017533	FRONT ARM ASSEMBLY (LFCII, LFCII-D), No. 1 - 8 plus No. 1 - 14, pages 8 - 9
1.	HB3-014133	Cover
2.	HB4-016705	Snubbing Pin
3.	HB2-017186	Wavy Washer
4.	HB5-016189	Washer
* 5.	HB6-015809	Straight Knuckle
* 6.	HB6-015864	Wiring Harness - Transformer to Yoke
7.	H35-006749	Insulator - Wire
* 8.	HB6-015810	Drop Knuckle

9.	XD1-090647	Screw - 10 - 24 x 3/4" phillips oval head
10.	HB5-014680	Drop Arm
11.	HB2-015506	Spring Pin (1/8 diameter x 1/2" long)
12.	HB5-015186	Pivot Rod
13.	HB5-014902	Cap
14.	HB5-016189	Washer
15.	XD1-090648	Screw - 10 - 24 x 1/2" phillips flat head
16.	XD1-090645	Screw - 10 - 32 x 1/2" hex socket set
17.	HB2-015502	Washer - Wavy
18.	HB4-014720	Yoke Body
19.	HB5-016182	Retainer
20.	XD1-090649	Screw - 4 - 40 x 1/4" phillips round head
21.	XD1-090643	Screw - 8 - 32 x 3/4" phillips oval head
22.	HB5-017187	Retainer
23.	HB4-014721	Yoke Cap
24.	H45-006849	Knurl Nut (9/16 diameter, 1/8" long)
25.	H32-010822	Wire Connector
*26.	H66-007096	Power Switch
27.	XB3-090052	Star Washer .50 ID x .59 OD x .02 shakeproof
*28.	HB6-016756	Ground Wire (CSA Only)

	HB6-017529	FRONT ARM ASSEMBLY (LFTII, LFTII-D), No. 29 - 34, 8 plus No. 1 - 14, pages 8 - 9
	H86-012756	REAR ARM COLUMN ADAPTER, No. 29 - 33
29.	H42-006828	Retaining Ring (Also part of No. 30.)
*30.	H46-006856	Adapter and Pin
31.	H45-006844	Collar
32.	XD1-090253	Screw - 10 - 32 x 1/4" hex socket set
33.	XD1-090173	Screw - 10 - 32 x 3/8" phillips round head
*34.	HB6-015807	Post Knuckle
*35.	HA6-001072	Dimmer
	HB6-017530	FRONT ARM ASSEMBLY ( LFWII (2)), No. 36 - 38, 32, 8, plus No. 1 - 14, pages 8 - 9
36.	HB4-016125	Plug
*37.	HB6-015808	Post Knuckle
*38.	HB6-015842	Adapter and Pin

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# Rear Arm (LFII Unit)





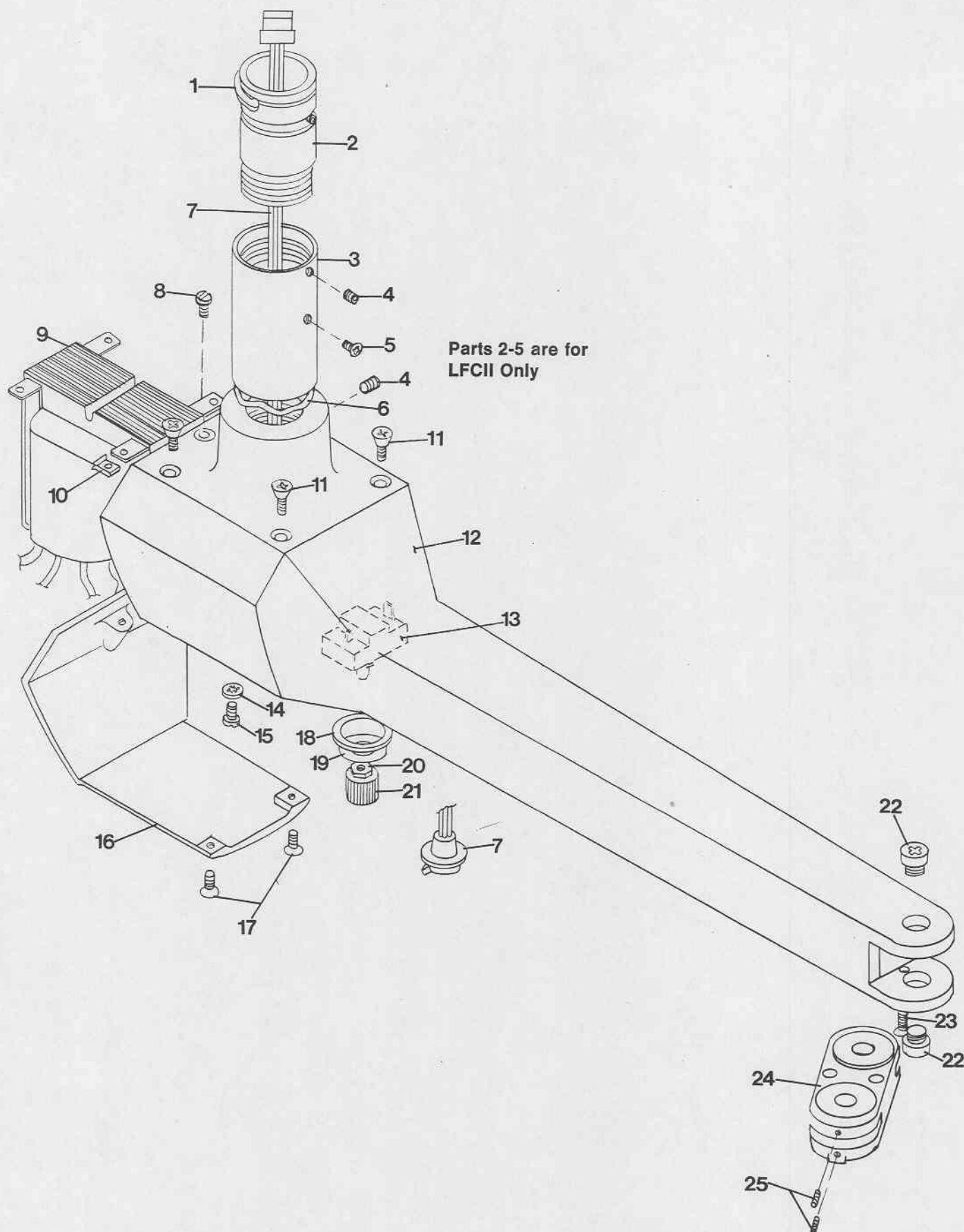
# Rear Arm (LFII Unit)

INDEX	PART NO.	DESCRIPTION
* 1.	HB6-015767	Cord and Bushing
2.	H35-006766	Adapter - Rear Arm
3.	H35-006763	Spacer
4.	XD1-090643	Screw - 8 - 32 x 3/4" phillips oval head
5.	XD1-090723	Screw - 6 - 32 x 3/8" phillips pan head
6.	HB2-015774	Speed Nut
7.	HB3-015768	Transformer (117V)
	HB3-016031	Transformer (234V)
8.	XD1-090110	Screw - 10 - 32 x 1/4" round head machine
9.	XD3-090380	Lock Washer - .20 ID x .37 OD x .02 internal shakeproof
10.	XD1-090641	Screw - 6 - 32 x 3/8" phillips oval head
11.	HB4-014899	End Cap
12.	HB2-015408	Dimmer Knob
13.	H32-006685	Hex Nut
14.	HB3-014999	Label - Dimmer
15.	HB3-015865	Bezel
16.	H63-013553	Dimmer Switch
17.	HB4-014941	Rear Arm
18.	XD1-090191	Screw - 10 - 24 x 1/2" flat head hex socket cap
19.	HB3-015108	Screw - Hinge
20.	HB4-014530	Adapter - Arm
21.	XD1-090645	Screw - 10 - 32 x 1/2" hex socket set
22.	H35-006749	Insulator - Wire (Long)
*23.	HB6-015766	Wiring Harness - Transformer to Yoke

\* THESE PARTS SOLD ONLY AS ASSEMBLIES



# Rear Arm (LFCII and LFCII-D)

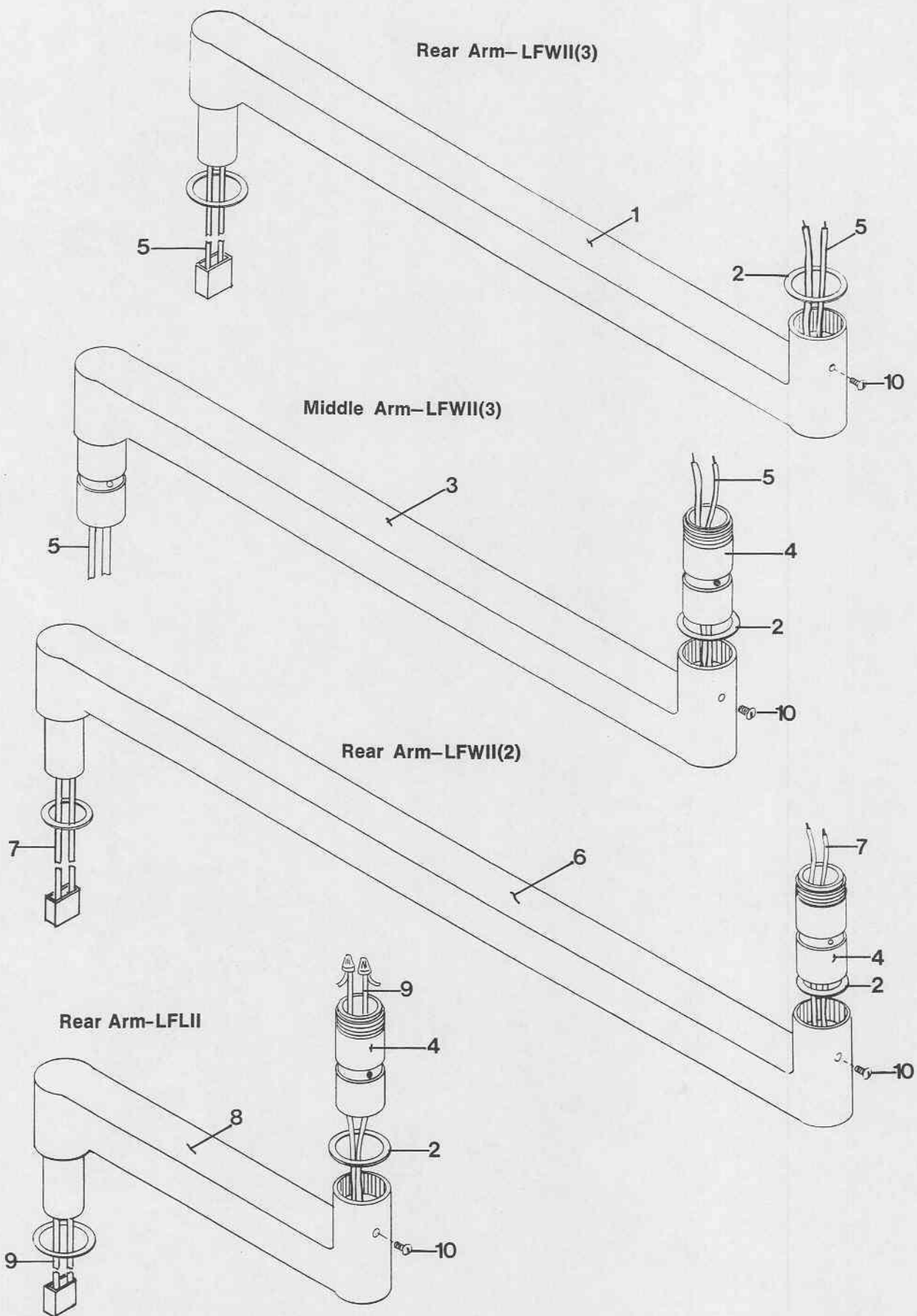


# Rear Arm (LFCII and LFCII-D)

INDEX	PART NO.	DESCRIPTION
	H86-012756	REAR ARM COLUMN ADAPTER ASSEMBLY, No. 1 - 6 (For LFCII only)
1.	H42-006828	Retaining Ring (Also part of No. 2)
* 2.	H46-006856	Adapter and Pin (For LFCII and LFCIID)
3.	H45-006844	Collar
4.	XD1-090253	Screw - 10 - 32 x 1/4" hex socket set
5.	XD1-090173	Screw - 10 - 32 x 3/8" phillips round head machine
6.	H92-007310	Drift Washer
* 7.	H86-013628	Line Cord
8.	XD1-090723	Screw - 6 - 32 x 3/8" phillips pan head
9.	HB3-015768	Transformer (117V)
	HB3-016031	Transformer (234V)
10.	HB2-015774	Speed Nut
11.	XD1-090643	Screw - 8 - 32 x 3/4" phillips oval head
12.	HB4-014897	Rear Arm
13.	H63-013553	Dimmer Switch
14.	XD3-090380	Lock Washer - .20 ID x .37 OD x .02 shakeproof
15.	XD1-090110	Screw - 10 - 32 x 1/4" round head machine
16.	HB4-014899	End Cap
17.	XD1-090641	Screw - 6 - 32 x 3/8" phillips oval head
18.	HB3-015865	Bezel
19.	HB3-014999	Label - Dimmer
20.	H32-006685	Hex Nut
21.	HB2-015408	Dimmer Knob
22.	HB3-015108	Screw
23.	XD1-090191	Screw - 10 - 24 x 1/2" flat head hex socket cap
24.	HB4-014530	Adapter
25.	XD1-090645	Screw - 10 - 32 x 1/2" hex socket set

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# Rear Arms (Lab and Wall Lights)



## Rear Arms (Lab and Wall Lights)

INDEX	PART NO.	DESCRIPTION
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LFWII (3) REAR ARM - No. 1, 2, 10

\* 1. H76-007166 Rear Arm and Post

2. H75-007129 Washer

LFWII (3) MIDDLE ARM - No. 3 - 5, 2, 10

\* 3. H76-007165 Arm and Bearing

\* 4. HB6-015842 Adapter and Pin

5. H75-007135 Wire

LFWII(2) REAR ARM - No. 6, 7, 2, 4, 10

\* 6. H76-007164 Rear Arm and Post

\* 7. HB6-015769 Transformer to Adapter Wiring Harness

LFLII REAR ARM - No. 8, 9, 10, 2, 4

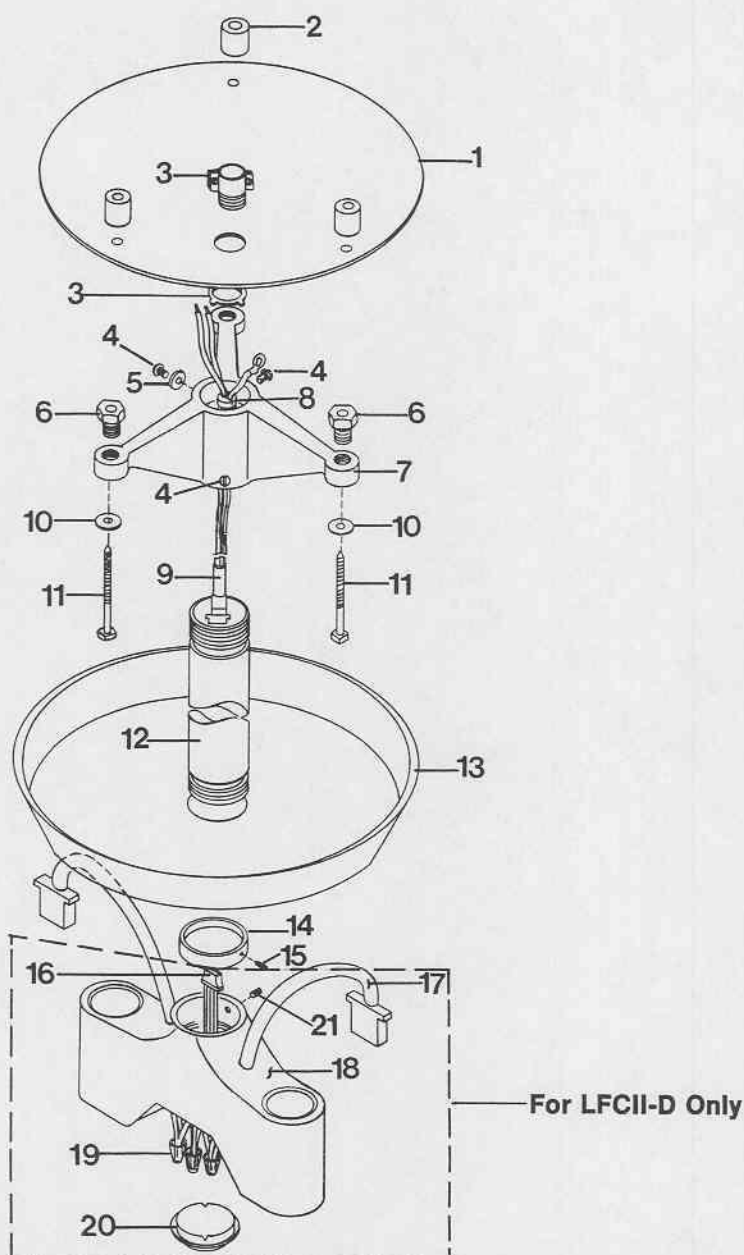
\* 8. H76-007168 Rear Arm and Post

\* 9. HB6-015460 Transformer to Adapter Wiring Harness

10. XD1-090099 Screw - 10 - 24 x 1/4" round head

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# Tripod, Cover and Columns (LFCII, LFCII-D)



INDEX	PART NO.	DESCRIPTION
	H86-012770	TRIPOD, COLUMN AND COVER ASSEMBLY - 7-1/2' and 8' CEILING, No. 1 - 15
	H86-012771	TRIPOD, COLUMN AND COVER ASSEMBLY - 8-1/2' CEILING, No. 1 - 15
	H86-012772	TRIPOD, COLUMN AND COVER ASSEMBLY - 9' CEILING, No. 1 - 15
	H86-012773	TRIPOD, COLUMN AND COVER ASSEMBLY - 9-1/2' CEILING, No. 1 - 15
	H86-012774	TRIPOD, COLUMN AND COVER ASSEMBLY - 10' CEILING, No. 1 - 15
	H86-012775	TRIPOD, COLUMN AND COVER ASSEMBLY - 10-1/2' CEILING, No. 1 - 15
	H86-012776	TRIPOD, COLUMN AND COVER ASSEMBLY - 11' CEILING, No. 1 - 15
	H86-012777	TRIPOD, COLUMN AND COVER ASSEMBLY - 11-1/2' CEILING, No. 1 - 15
	H86-012778	TRIPOD, COLUMN AND COVER ASSEMBLY - 12' CEILING, No. 1 - 15
	H86-012779	TRIPOD, COLUMN AND COVER ASSEMBLY - 12-1/2' CEILING, No. 1 - 15
	H86-012780	TRIPOD, COLUMN AND COVER ASSEMBLY - 13' CEILING, No. 1 - 15
1.	H85-007205	Plate - Ceiling
2.	H55-006924	Spacer
3.	H42-006826	Connector



# Tripod, Cover and Columns (LFCII, LFCII-D)

## INDEX    PART NO.    DESCRIPTION

H86-007280    TRIPOD ASSEMBLY - 7-1/2' AND 8' CEILING, No. 4 - 9

H86-007281    TRIPOD ASSEMBLY - 8-1/2' CEILING, No. 4 - 9

H86-007282    TRIPOD ASSEMBLY - 9' CEILING, No. 4 - 9

H86-007283    TRIPOD ASSEMBLY - 9-1/2' CEILING, No. 4 - 9

H86-007284    TRIPOD ASSEMBLY - 10' CEILING, No. 4 - 9

H86-007285    TRIPOD ASSEMBLY - 10-1/2' CEILING, No. 4 - 9

H86-007286    TRIPOD ASSEMBLY - 11' CEILING, No. 4 - 9

H86-007287    TRIPOD ASSEMBLY - 11-1/2' CEILING, No. 4 - 9

H86-007288    TRIPOD ASSEMBLY - 12' CEILING, No. 4 - 9

H86-007289    TRIPOD ASSEMBLY - 12-1/2' CEILING, No. 4 - 9

H86-012707    TRIPOD ASSEMBLY - 13' CEILING, No. 4 - 9

4.    XD1-090099    Screw - 10 - 24 x 1/4" round head machine

5.    H45-006846    Washer

6.    H45-006851    Adjusting Nut

7.    H44-006837    Tripod

8.    H42-006830    Bushing

\* 9.    H86-007270    Line Cord - 7-1/2' and 8' Ceiling

      H86-007271    Line Cord - 8-1/2' Ceiling

      H86-007272    Line Cord - 9' Ceiling

      H86-007273    Line Cord - 9-1/2' Ceiling

      H86-007274    Line Cord - 10' Ceiling

      H86-007275    Line Cord - 10-1/2' Ceiling

      H86-007276    Line Cord - 11' Ceiling

      H86-007277    Line Cord - 11-1/2' Ceiling

      H86-007278    Line Cord - 12' Ceiling

      H86-007279    Line Cord - 12-1/2' Ceiling

      H86-011404    Line Cord - 13' Ceiling

10.    XD3-090393    Washer - .28 ID x .75 OD x .06 steel

11.    H42-006829    Lag Bolt

12.    H85-011220    Column - 8" (7-1/2' and 8' Ceiling)

      H55-006905    Column - 14" (8-1/2' Ceiling)

      H55-006906    Column - 20" (9' Ceiling)

      H55-006907    Column - 26" (9-1/2' Ceiling)

      H55-006908    Column - 32" (10' Ceiling)

      H55-006909    Column - 38" (10-1/2' Ceiling)

      H85-007207    Column - 44" (11' Ceiling)

      H85-007208    Column - 50" (11-1/2' Ceiling)

      H85-007209    Column - 56" (12' Ceiling)

      H85-007210    Column - 62" (12-1/2' Ceiling)

      H85-011403    Column - 68" (13' Ceiling)

13.    H44-006838    Cover

14.    H55-006903    Collar

15.    XD1-090242    Screw - 6 - 32 x 1/8" hex socket set

### DUAL COLUMN LIGHT

\*16.    HB6-015875    Line Cord

\*17.    HB6-015870    Line Cord

18.    HB4-016085    Mounting Bracket

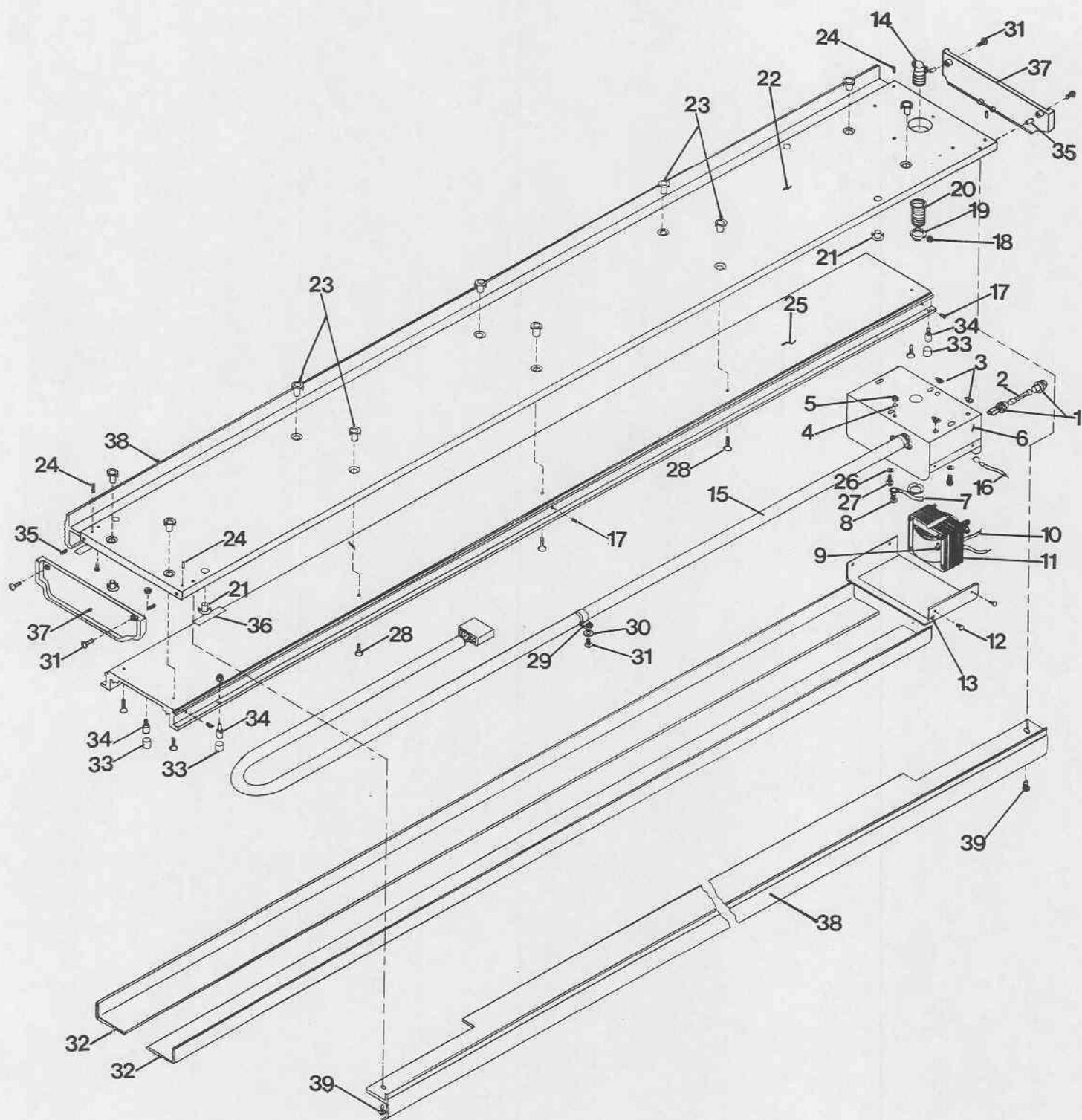
19.    H32-010822    Wire Connector

20.    G05-005873    Plug

21.    XD1-090253    Screw - 10 - 32 x 1/4" hex socket set

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

Standard Track  
(LFTII)

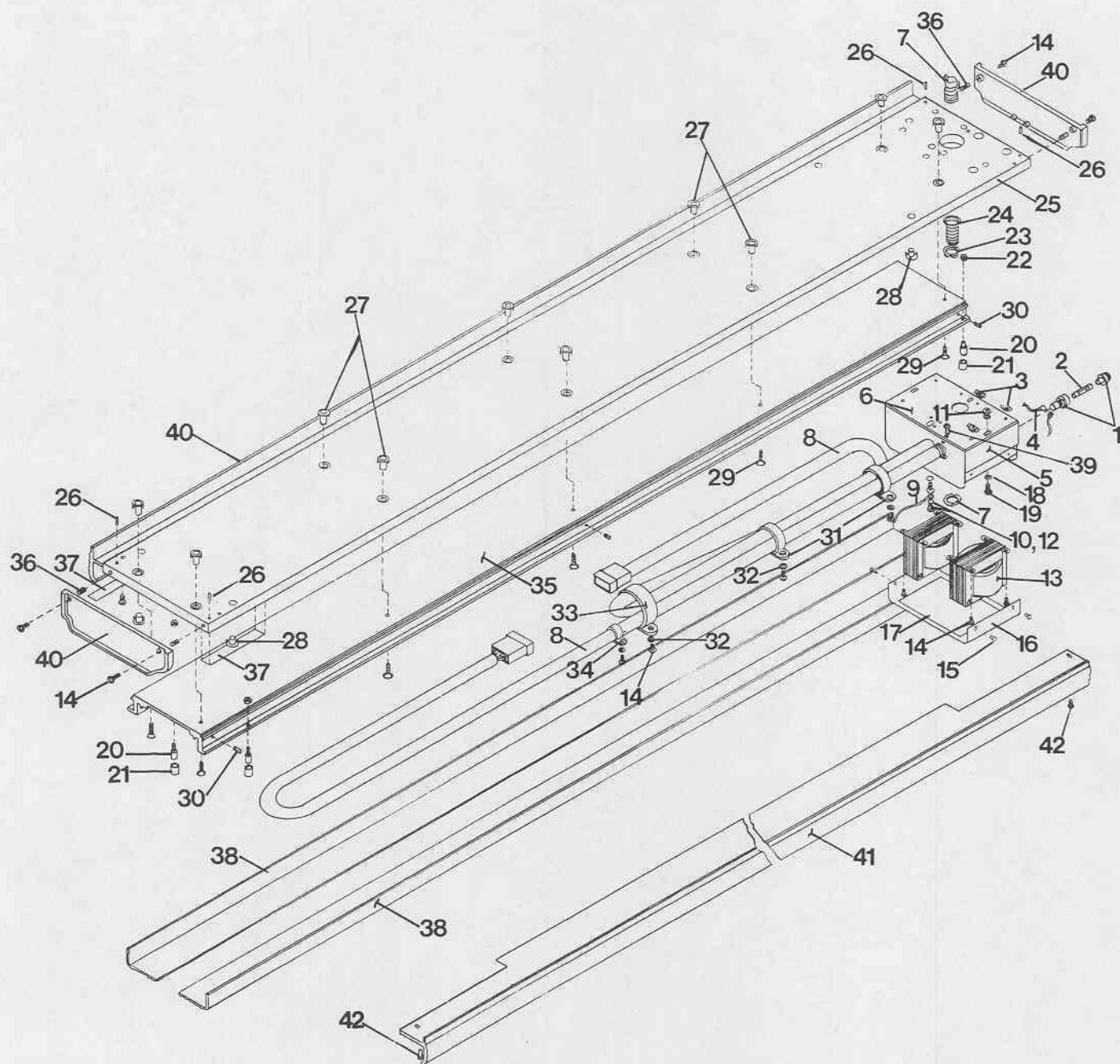


## INDEX PART NO. DESCRIPTION

HA6-001403	TRACK AND TROLLEY ASSEMBLY, No. 1 - 39 plus TROLLEY ASSEMBLY
HA6-001028	HA6-001032, pages 26 and 27
HA6-001027	TRACK ASSEMBLY, No. 1 - 35
1. HA2-014597	TRANSFORMER ASSEMBLY, No. 1 - 16
2. HA2-014382	Fuse Holder
3. A32-004086	Fuse
4. XD3-090378	Retaining Nut
5. XD2-090406	Lock Washer - .17 ID x .30 OD x .02 shakeproof
6. HA5-001021	Nut - 8 - 32 hex
* 7. HA6-001071	Transformer Box
8. XD1-090089	Ground Wire
9. XD1-090099	Screw - 8 - 32 x 1/4" round head machine
10. HA5-001070	Screw - 10 - 24 x 1/4" round head machine
11. HB3-015892	Wire
HB3-015893	Transformer (117V)
12. XD1-090350	Transformer (234V)
13. HA5-001020	Screw - 6 x 1/4" pan head tapping
14. C22-005027	Lid - Transformer Box
*15. HA6-013721	Cord Connector
*16. HA6-014599	Cord
17. XD1-090253	Fuse Wire
18. XD2-090410	Screw - 10 - 32 x 1/4" hex socket set
19. HA2-013663	Nut - 1/4 - 20 hex
20. HA2-013662	Lock Nut
21. R02-008233	Panel Extension
22. HA4-013258	Tee Nut
23. H42-006824	Pallet
24. XB4-090518	Anchor Nut
25. HA5-001024	Escutcheon Pin - .083 x 5/8"
26. XD3-090390	Channel
27. XD1-090103	Washer - .19 ID x .43 OD x .04 steel
28. XD1-090150	Screw - 10 - 24 x 7/8" round head machine
29. H42-006827	Screw - 1/4 - 20 x 1" flat head machine
30. XD3-090380	Clip
31. XD1-090101	Lock Washer - .20 ID x .37 OD x .02 internal
32. HA5-001364	Screw - 10 - 24 x 1/2" round head machine
33. HA2-001058	Dress Cover
34. HA5-001007	Cap
35. HA5-001385	Stop
36. HA5-011176	Insert
37. HA4-001365	Cover - Block Out
38. HA5-001050	End Cap
39. XD1-090547	Extrusion Panel
	Screw - 8 - 3/4" pan head sheet metal

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# Standard Dual Track (LFTII-D)





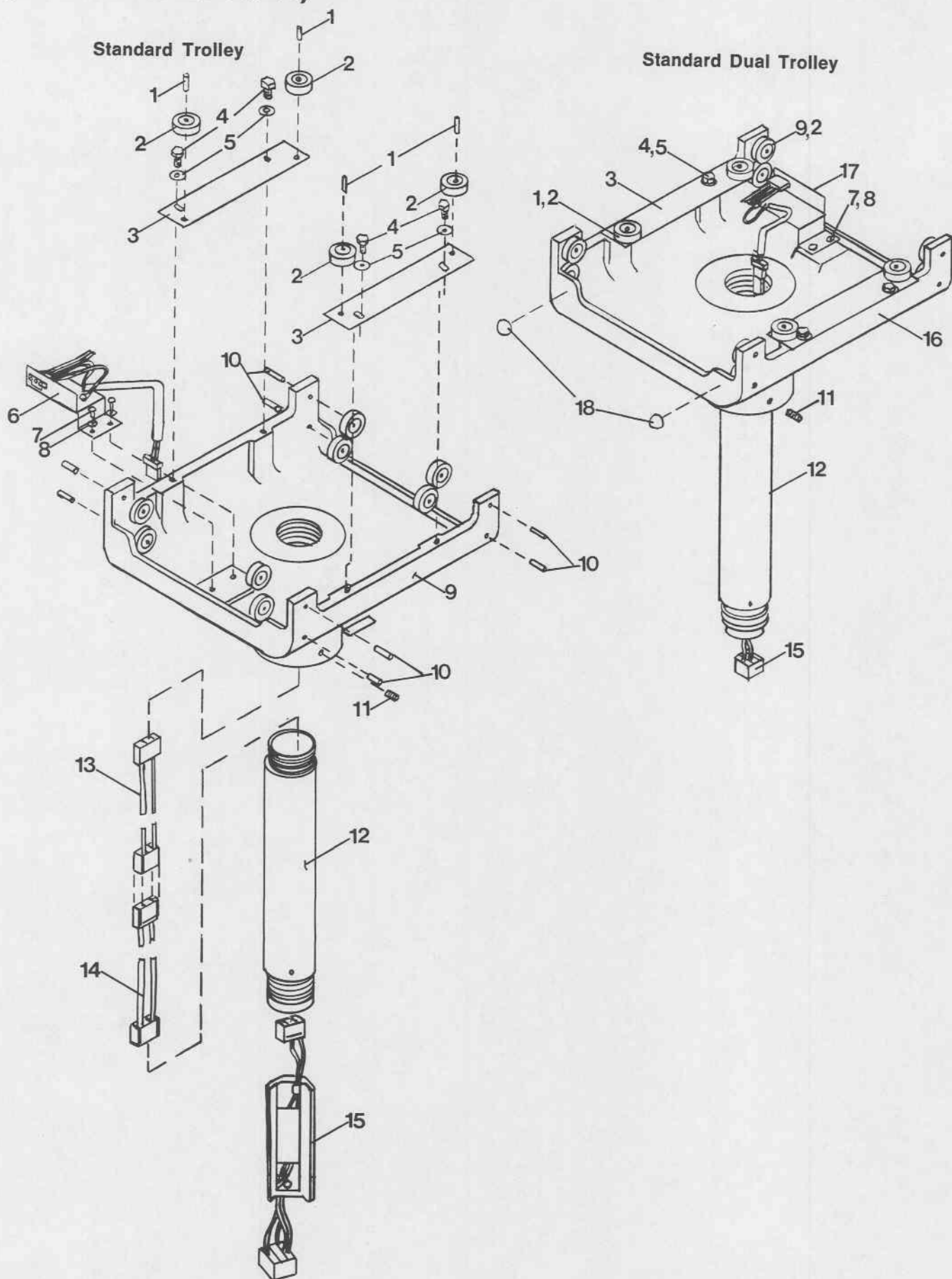
## INDEX PART NO. DESCRIPTION

	HA6-001321	TRACK ASSEMBLY - DUAL LIGHT, No. 1 - 39
	HA6-001329	TRANSFORMER ASSEMBLY - DUAL, No. 1 - 17
1.	HA2-014597	Fuse Holder
2.	HA2-014598	Fuse
3.	A32-004086	Retaining Nut
* 4.	HA6-014599	Fuse Wire
5.	HA5-001348	Transformer Box
6.	HA5-013259	Plate - Heat Sink
7.	C22-005027	Cord Connector
* 8.	HA6-013721	Cord
* 9.	HA6-001071	Ground Wire
10.	XD3-090378	Lock Washer - .17 ID x .30 OD x .02 shakeproof
11.	XD2-090406	Nut - 8 - 32 hex
12.	XD1-090089	Screw - 8 - 32 x 1/4" round head machine
13.	HB3-015892	Transformer (117V)
	HB3-015893	Transformer (234V)
14.	XD1-090101	Screw - 10 - 24 x 1/2" round head machine
15.	XD1-090516	Screw - 6 x 1/4" pan head sheet metal
16.	HA5-001020	Lid - Transformer Box
17.	HA5-001353	Wiring Diagram
18.	XD3-090390	Washer - .19 ID x .43 OD x .04 steel
19.	XD1-090103	Screw - 10 - 24 x 7/8" round head machine
20.	HA5-001007	Stop
21.	HA2-001058	Cap
22.	XD2-090410	Nut - 1/4 - 20 hex
23.	HA2-013663	Lock Nut
24.	HA2-013662	Panel Extension
25.	HA4-013898	Pallet
26.	XB4-090518	Escutcheon Pin - .083 x 5/8"
27.	H42-006824	Anchor Nut
28.	R02-008233	Tee Nut
29.	XD1-090150	Screw - 1/4 - 20 x 1" flat head machine
30.	XD1-090253	Screw - 10 - 32 x 1/4" hex socket set
31.	L12-007474	Wire Clamp
32.	XD3-090380	Lock Washer - .20 ID x .37 OD x .02 internal shakeproof
33.	HA2-013723	Cord Clamp
34.	H42-006827	Clip
35.	HA4-001320	Channel
36.	HA5-001385	Insert
37.	HA5-011176	Cover - Block Out
38.	HA4-001364	Dress Cover
39.	XD1-090091	Screw - 8 - 32 x 1/2" round head steel machine
40.	HA4-001365	End Cap
41.	HA5-001050	Extrusion Panel
42.	XD1-090547	Screw - 8 - 32 x 3/4" pan head sheet metal

\* THESE PARTS SOLD ONLY AS ASSEMBLIES



# Trolleys (LFTII and LFTII-D)



# Trolleys (LFTII and LFTII-D)

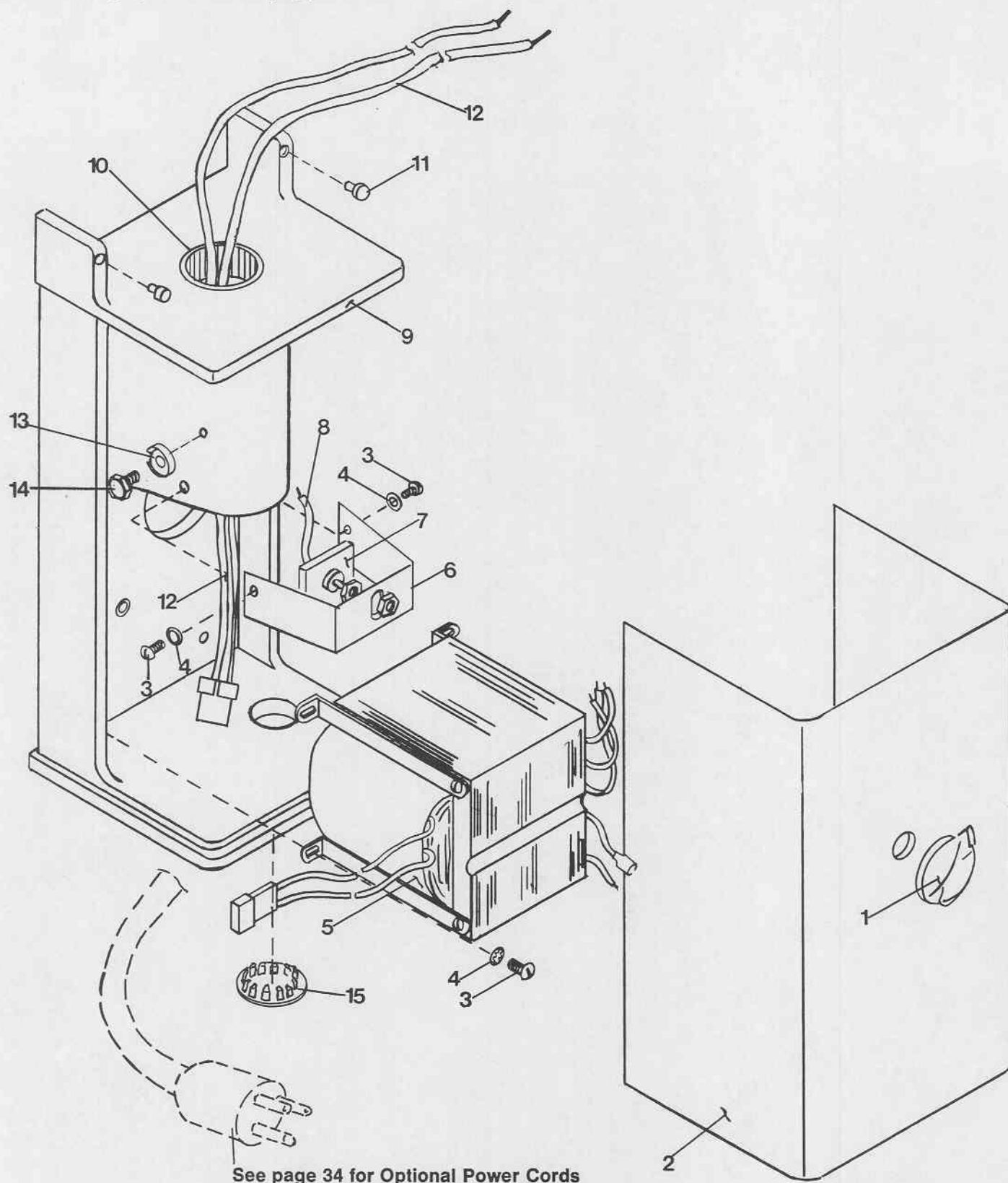
## INDEX PART NO. DESCRIPTION

	HA6-001032	TROLLEY ASSEMBLY, No. 1 - 11
	HA6-001031	GUIDE PLATE ASSEMBLY, No. 1 - 3
1.	HA2-001384	Dowel Pin
* 2.	HA6-001029	Roller
3.	HA5-001011	Guide Plate
4.	XD1-090570	Screw - 10 - 24 x 3/8" slotted hex washer head
5.	XD3-090380	Lock Washer - .20 ID x .37 OD x .02 internal shakeproof
* 6.	HA6-001030	Trolley Bracket
7.	XD1-090099	Screw - 10 - 24 x 1/4" round head machine
8.	XD3-090380	Lock Washer - .20 ID x .37 OD x .02 internal shakeproof
	HA6-001287	TROLLEY AND ROLLER ASSEMBLY, No. 9, 10, 2
9.	HA4-001023	Trolley
10.	HA2-001053	Spiral Pin
11.	XD1-090252	Screw - 10 - 24 x 1/4" hex socket set
	HB6-016919	COLUMN ASSEMBLY - 20" (9' Ceiling), No. 23, 13
	HB6-016920	COLUMN ASSEMBLY - 26" (9-1/2' Ceiling), No. 12, 13
	HB6-016921	COLUMN ASSEMBLY - 32" (10' Ceiling), No. 12 and 14
	HB6-016922	COLUMN ASSEMBLY - 38" (10-1/2' Ceiling), No. 12 and 14
	HB6-016923	COLUMN ASSEMBLY - 44" (11' Ceiling), No. 12 - 14
	HB6-016924	COLUMN ASSEMBLY - 50" (11-1/2' Ceiling), No. 12 - 14
	HB6-016925	COLUMN ASSEMBLY - 56" (12' Ceiling), No. 12 and 14
	HB6-016926	COLUMN ASSEMBLY - 62" (12-1/2' Ceiling), No. 12 and 14
	HB6-016927	COLUMN ASSEMBLY - 68" (13' Ceiling), No. 12 - 14
12.	H55-006904	Column - 11" (7-1/2' and 8' Ceiling)
	H55-006905	Column - 14" (8-1/2' Ceiling)
	H55-006906	Column - 20" (9' Ceiling)
	H55-006907	Column - 26" (9-1/2' Ceiling)
	H55-006908	Column - 32" (10' Ceiling)
	H55-006909	Column - 38" (10-1/2' Ceiling)
	H85-007207	Column - 44" (11' Ceiling)
	H85-007208	Column - 50" (11-1/2' Ceiling)
	H85-007209	Column - 56" (12' Ceiling)
	H85-007210	Column - 62" (12-1/2' Ceiling)
	H85-011403	Column - 68" (13' Ceiling)
*13.	HA6-001295	Wire Extension - 11"
*14.	HA6-001298	Wire Extension - 23"
*15.	HA6-001068	Phase Control Dimmer Circuit
	HA6-001319	TROLLEY ASSEMBLY - STANDARD DUAL, No. 16 - 18, 1 - 5, 7, 11
	HA6-001357	ROLLER AND TROLLEY ASSEMBLY, No. 16, 9, 2
16.	HA4-001290	Trolley - Dual Light
*17.	HA6-001316	Trolley Bracket
18.	HA2-001388	Bumper

The Standard Dual Track Light, HB7-014780 uses one Standard Trolley Assembly, HA6-001032, and one Standard Dual Trolley Assembly, HA6-001319.

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# Mounting Box LFWII(2), LFWII(3), LFLII



See page 34 for Optional Power Cords

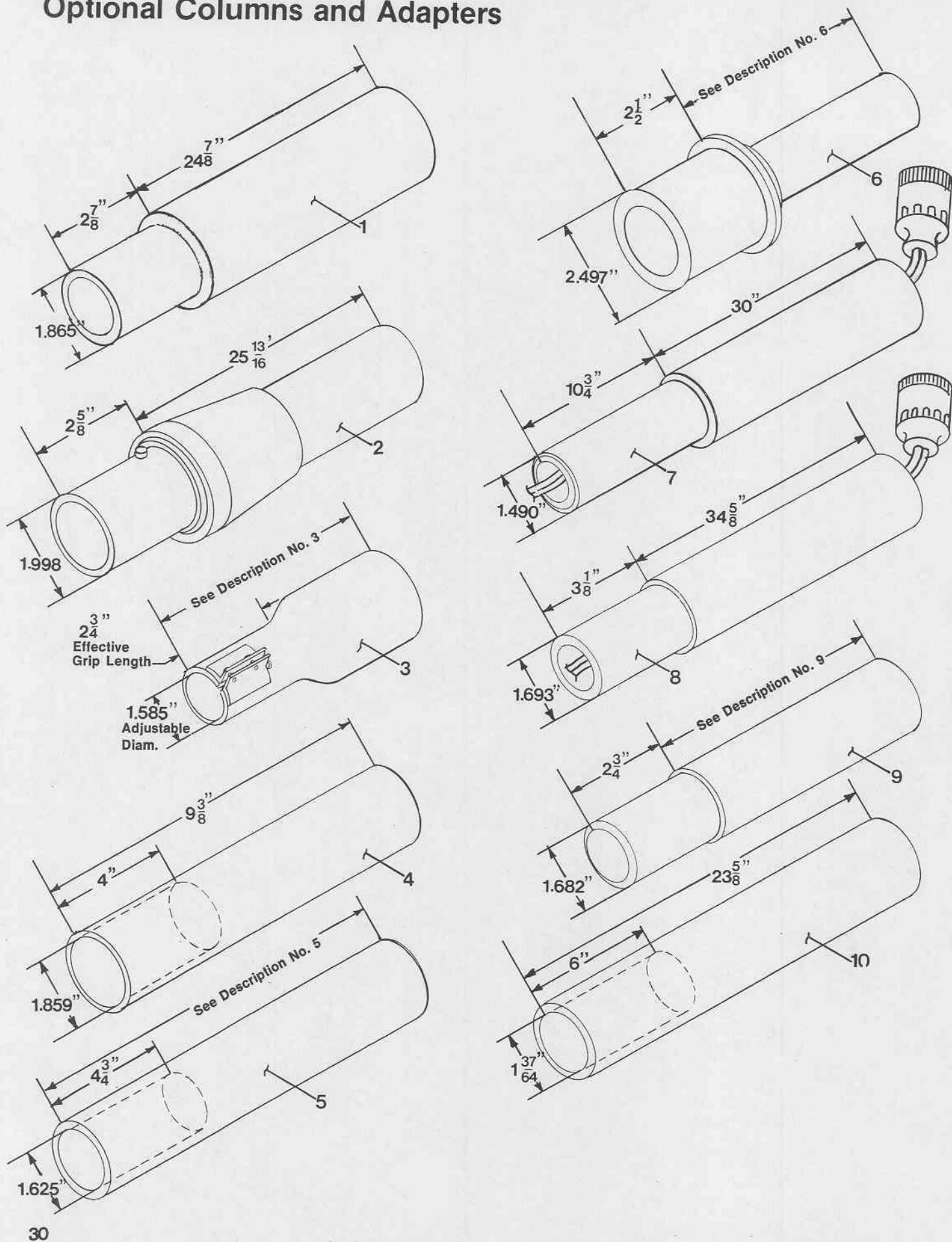
# Mounting Box LFWII(2), LFWII(3), LFLII

INDEX	PART NO.	DESCRIPTION
	HB6-016173	MOUNTING BOX ASSEMBLY, No. 1 - 11
1.	H63-007027	Knob
2.	H75-007128	Cover
3.	XD1-090099	Screw - 10 - 24 x 1/4" slotted round head machine
4.	XD3-090380	Lock Washer - .20 ID x .37 OD x .02 internal shakeproof
5.	HB3-015768	Transformer (117V)
	HB3-016031	Transformer (234V)
6.	H75-007130	Bracket
7.	H72-007114	Switch
8.	H75-007133	Wire
9.	H74-007120	Wall Mount (LFWII (2) and LFWII (3))
	H74-007121	Table Mount (LFLII)
10.	H72-007113	Bearing
11.	H33-006697	Button
*12.	HB6-015460	Transformer to Adapter Wiring Harness (LFLII)
	HB6-015769	Transformer to Adapter Wiring Harness (LFWII)
	H75-007135	Wire (LFWII (3))
13.	H45-006846	Washer - Ground Screw
14.	A64-011067	Screw - 10 - 32 x 3/8" hex head green ground
15.	HB2-017192	Hole Plug

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# ACCESSORIES FOR LFII

## Optional Columns and Adapters



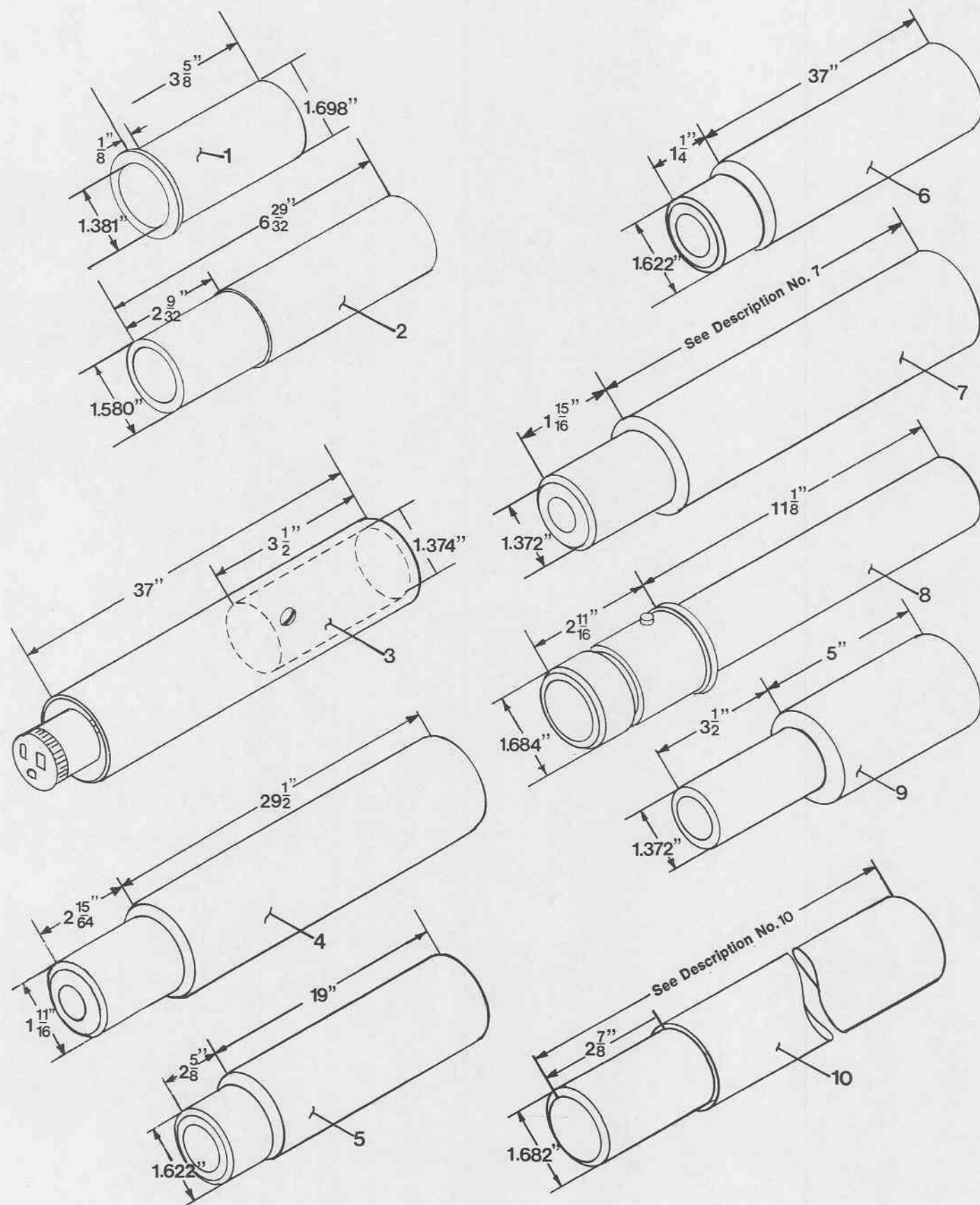


# Optional Columns and Adapters

INDEX	PART NO.	DESCRIPTION
1.	H25-006664	Column - 27-3/4" (Ritter G-Special Length)
* 2.	H27-006669	Column 28-7/16" (Weber M-0, 500)
* 3.	H27-006667	Post Adapter - 8" (S. S. White Master Selectron XVI with tray)
	H27-006670	Post Adapter - 15" (S. S. White Model XX without X-ray, Model XVI without tray, Den-tal-ez Model AC-17, Weber A Pedestal P-61, Ritter A Trident A, B, C, D, Units)
	H27-006671	Post Adapter - 19" (Ritter B and C Trident, E and F Units, Weber Turbinette, Nudent, Majestic, Empire, P-62, P-64 S. S. White 3-5-6)
	H27-006672	Post Adapter - 24" (Weber Imperial H-K-MC500)
	H27-006677	Post Adapter - 30" (Siemens Regular, Coastal Dynamics, Dyna-Dent, Metal Craft Unitek)
	H27-006679	Post Adapter - 36" (Weber Unette, P-60 S. S. White Air Master) (Includes power cord)
	H37-006807	Post Adapter - 44" (S. S. White Revelation Chair, Coastal Citation VIP)(Includes power cord)
4.	H35-006774	Post Adapter - 9-3/8" (Siemens Sirona)(Short)
5.	HB7-017196	Post Adapter - 36" (Chayes Den-Ti-Mo)(Special)(Includes power cord)
	H35-006753	Post Adapter - 8-1/4" (Chayes Den-Ti-Mo)
	H35-006785	Post Adapter - 15" (Chayes Den-Ti-Mo)(Special)
* 6.	H35-006801	Column - 14-1/8" (16-5/8" total length)(Ritter Modulaire, G, H, J,)(Reg.)
	H27-006668	Column - 19-1/2" (22" total length)(Ritter, G,H,J, Compact)(Special)
	H37-006805	Column - 7" (9-1/2" total length)(Ritter Modulaire, G, H, J) (Special)
* 7.	HB7-017198	Column - 40-3/4" (Midwest 200, 210, 300)
* 8.	HB7-017199	Column - 37-3/4" (Midwest 200 and 300 without tray arm)
* 9.	HB7-017197	Column - 47-7/8" (50-5/8" total length)(Weber Chair)(Special) (Includes power cord)
	H37-006817	Column - 24-1/8" (26-3/4" total length)(Weber P-70)
*10.	H65-007076	Post Adapter - 23-5/8"

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# ACCESSORIES FOR LFII Optional Columns and Adapters

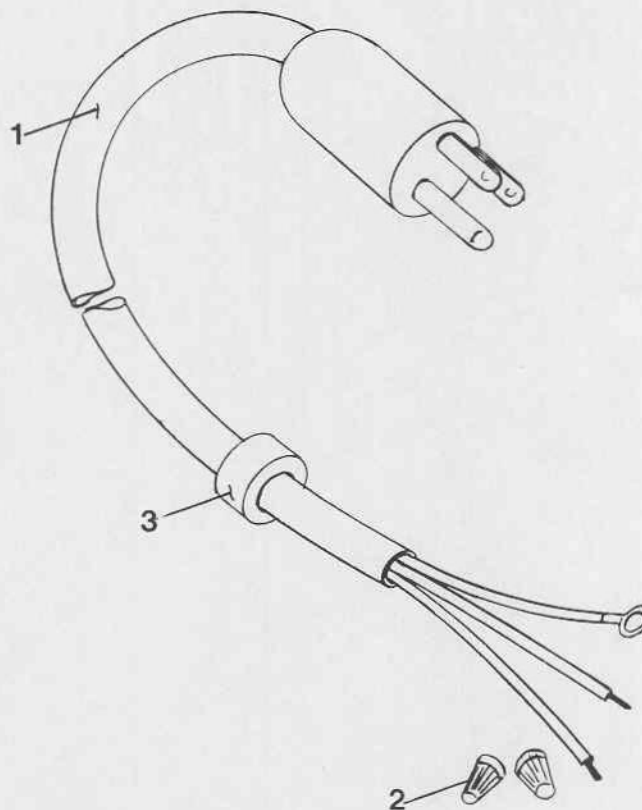


# Optional Columns and Adapters

INDEX	PART NO.	DESCRIPTION
1.	H75-007158	Adapter - Ritter Light to Pelton & Crane Light Post (3.625" total length)
* 2.	H65-007054	Adapter - Wall Mount
* 3.	H67-007095	Post Adapter - 37" (Ritter Chair Models 92GL, 92HIX)
* 4.	H67-011569	Column - 29-1/2" (Castellini Unit)(31.73" total length)
* 5.	H67-007110	Column - 19" (Ritter 180 Unit)(21.625" length)
* 6.	H67-007107	Column - 37" (Ritter 92 HL Chair)(38.25" total length)
* 7.	H67-007106	Column - 4.625" (6.563" total length)
	H37-006813	Column - 12" (Ritter Console Commander, Den-tal-ez AC-17) (13.94 total length)
* 8.	H67-007104	Column - 13.81" (Weber Criterion 300, P-75 Versalette)
9.	H65-012247	Column - 5" (Ritter X-100 Chair, 180 Floor Mount)(8-1/2" total length)
10.	H75-007142	Column - 9-7/8"
	H75-007145	Column - 26-7/8"

\* THESE PARTS SOLD ONLY AS ASSEMBLIES

# ACCESSORIES FOR LFWII(2), LFWII(3), LFLII Optional Power Cords



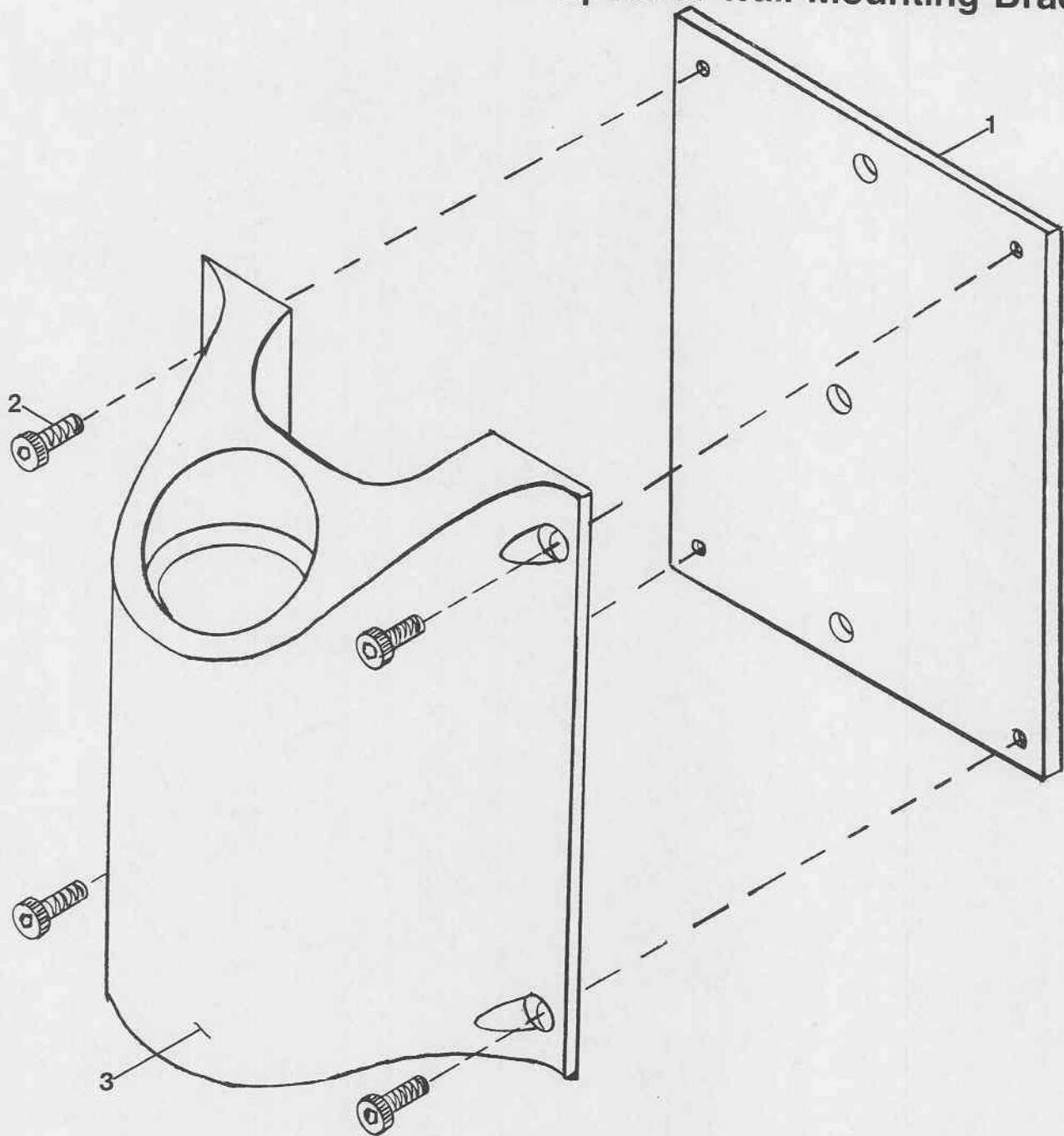
INDEX	PART NO.	DESCRIPTION
-------	----------	-------------

- |    |            |  |
|----|------------|--|
| 1. | HB7-016389 | Power Cord - 2' (Includes No. 2, 3)    |
|    | HB7-016390 | Power Cord - 3-1/2' (Includes No. 2,3) |
|    | HB7-016391 | Power Cord - 5' (Includes No. 2, 3)    |
|    | HB7-016392 | Power Cord - 6-1/2' (Includes No. 2,3) |
|    | HB7-016393 | Power Cord - 8' (Includes No. 2,3)     |

- |    |            |          |
|----|------------|----------|
| 2. | G02-005847 | Wire Nut |
|----|------------|----------|

- |    |            |               |
|----|------------|---------------|
| 3. | F12-005679 | Strain Relief |
|----|------------|---------------|

## ACCESSORIES FOR LFII Optional Wall Mounting Bracket

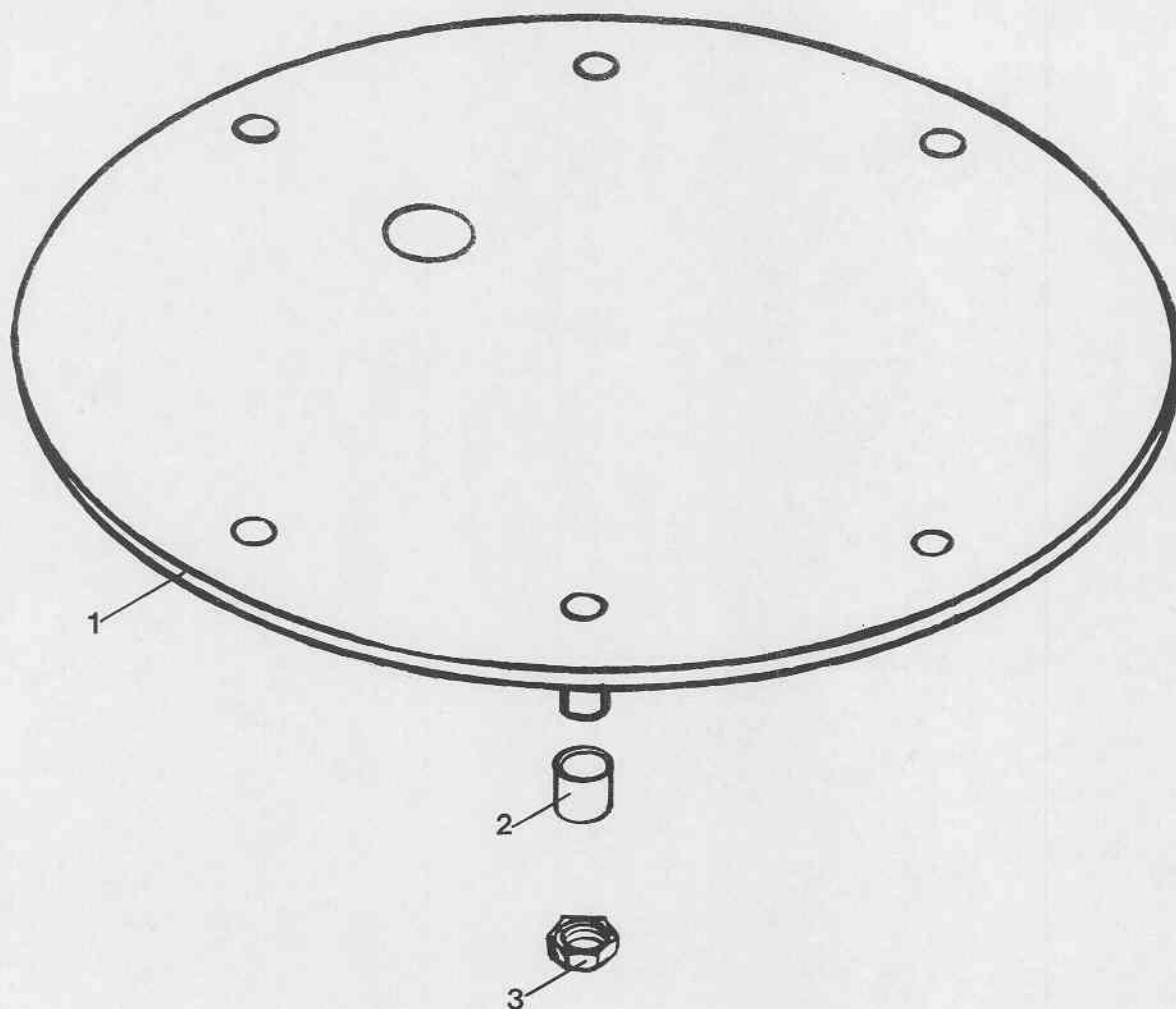


INDEX	PART NO.	DESCRIPTION
	H67-011203	WALL MOUNT BRACKET AND PLATE ASSEMBLY, No. 1 - 3
1.	H35-006757	Plate
2.	XD1-090201	Screw - 1/4 - 20 x 5/8" hex socket cap
3.	H34-006719	Bracket



## ACCESSORIES FOR LFCII, LFCII-D

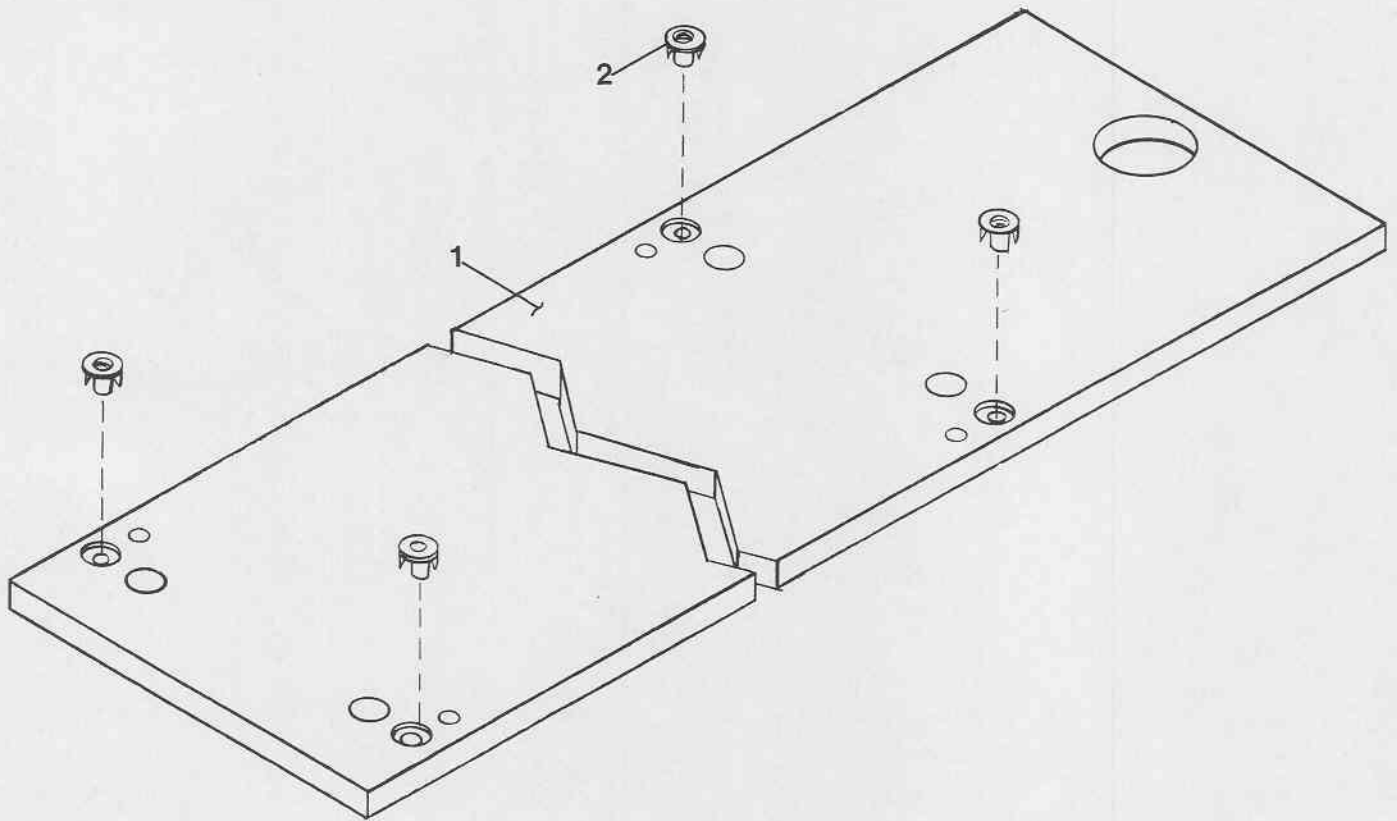
### Optional Mounting Plate



INDEX	PART NO.	DESCRIPTION
	H87-007257	OPTIONAL MOUNTING PLATE ASSEMBLY, No. 1 - 3
* 1.	H86-007256	Mounting Plate and Stud
2.	H85-007206	Spacer
3.	XD2-090410	Nut - 1/4 - 20 steel hex

**\* THESE PARTS SOLD ONLY AS ASSEMBLIES**

# ACCESSORIES FOR LFTII, LFTII-D Optional Sub-Pallet



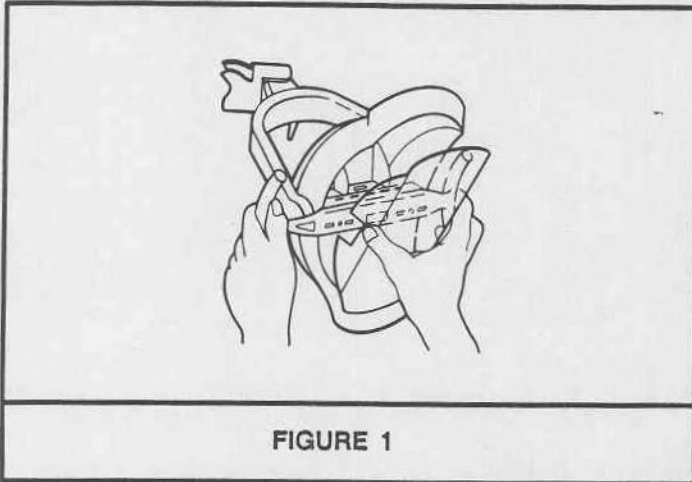
INDEX	PART NO.	DESCRIPTION
	HA6-001400	SUB-PALLET ASSEMBLY, No. 1 and 2
1.	HA5-001399	Sub Pallet
2.	H42-006824	Anchor Nut



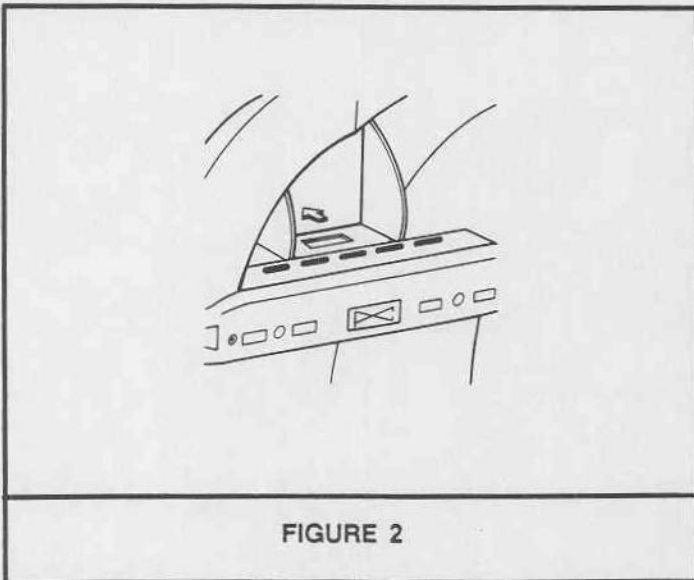
# LIGHT FANTASTIC® LAMP REPLACEMENT

## 1.00 INSTRUCTIONS

1.01 Remove plastic shield by squeezing firmly at the sides and pulling one end out from behind retaining flange (Figure 1).

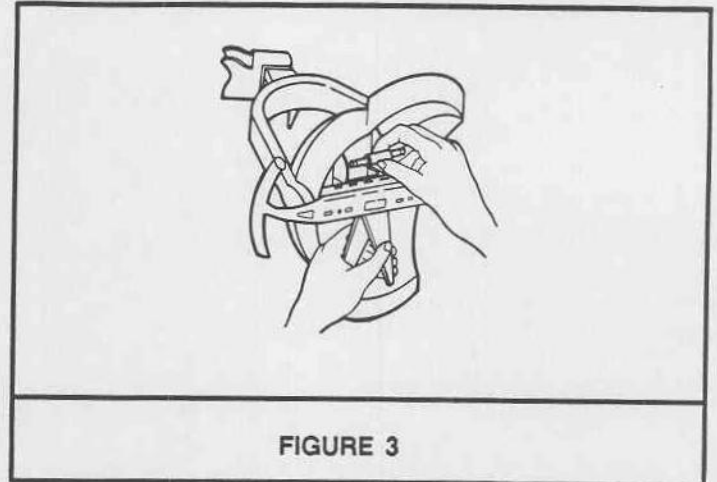


1.02 Remove access clip by pushing toward reflector with coin or end of screwdriver (Figure 2).



1.03 Place tips of socket retractor under focus bracket so tabs of retractor slip into slot at bottom of lamp sockets. Squeeze retractor. While holding sockets compressed, lift lamp up and out with other hand (Figure 3).

**CAUTION:** Use tissue to hold new lamp while installing. Do not touch new lamp with bare fingers. Contamination may shorten lamp life. If touched, clean with alcohol and dry with clean cloth to remove fingerprints.



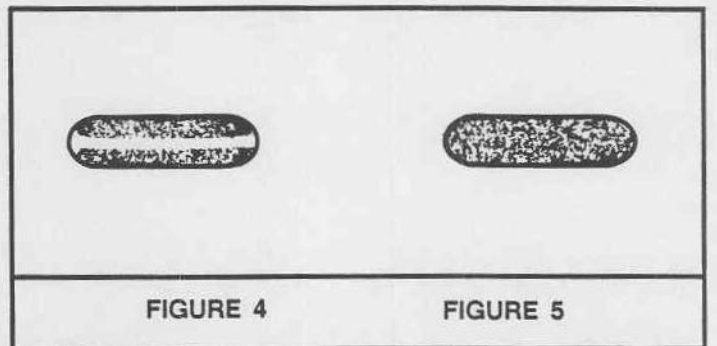
1.04 Engage retractor in sockets and squeeze. Hold flat of new lamp in hand so exhaust tip is pointed away from glass. Insert lamp and allow to lock in sockets.

1.05 Ensure lamp terminals make good connection with sockets. Position ends of socket equidistant from mounting bracket. Replace clip and shield.

**WARNING:** Do not operate light unless plastic shield is in place. Shield provides protection in case of lamp explosion.

## 2.00 FOCUSING

2.01 Round holes on either side of Pelton & Crane emblem allow access to focusing screws. Turn both screws equally **clockwise** until pattern begins to separate into two separate patterns as shown in Figure 4.



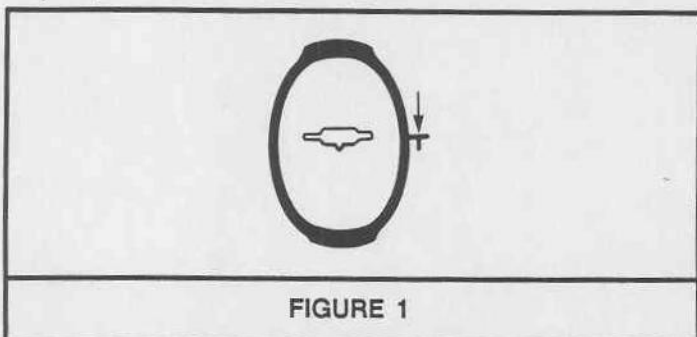
2.02 Turn each screw one turn at a time **counterclockwise**. Continue this process until the two patterns superimpose and become sharp as shown in Figure 5. Focusing should be accomplished with pattern 36" (91.4 cm) from light head.

2.03 If lamp is not centered from side to side, or if focusing screws are not adjusted equally, pattern will be brighter or larger on one side than on the other.

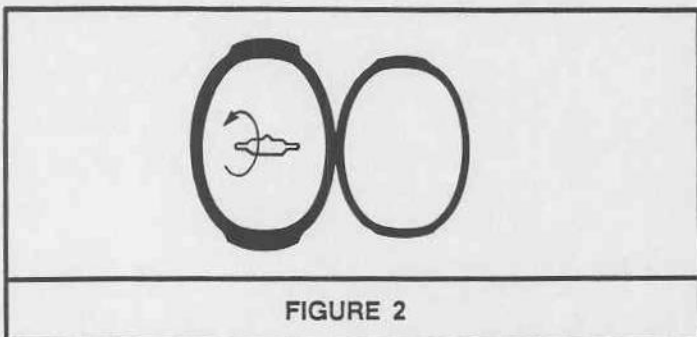
# LIGHT FANTASTIC® II LAMP REPLACEMENT

## 1.00 INSTRUCTIONS

- 1.01 Open light by pushing button and swinging reflector away from frame (Figure 1).



- 1.02 Rotate lamp 90° so edge can be held with fingers (Figure 2).



- 1.03 Push socket back with lamp removal lever and remove lamp.

**CAUTION:** Use tissue to hold new lamp while installing. Do not touch new lamp with bare fingers. Contamination may shorten lamp life. If touched, clean with alcohol and dry with clean cloth to remove fingerprints.

- 1.04 Install replacement lamp with exhaust tip away from reflector. Close reflector.

## 2.00 FOCUSING

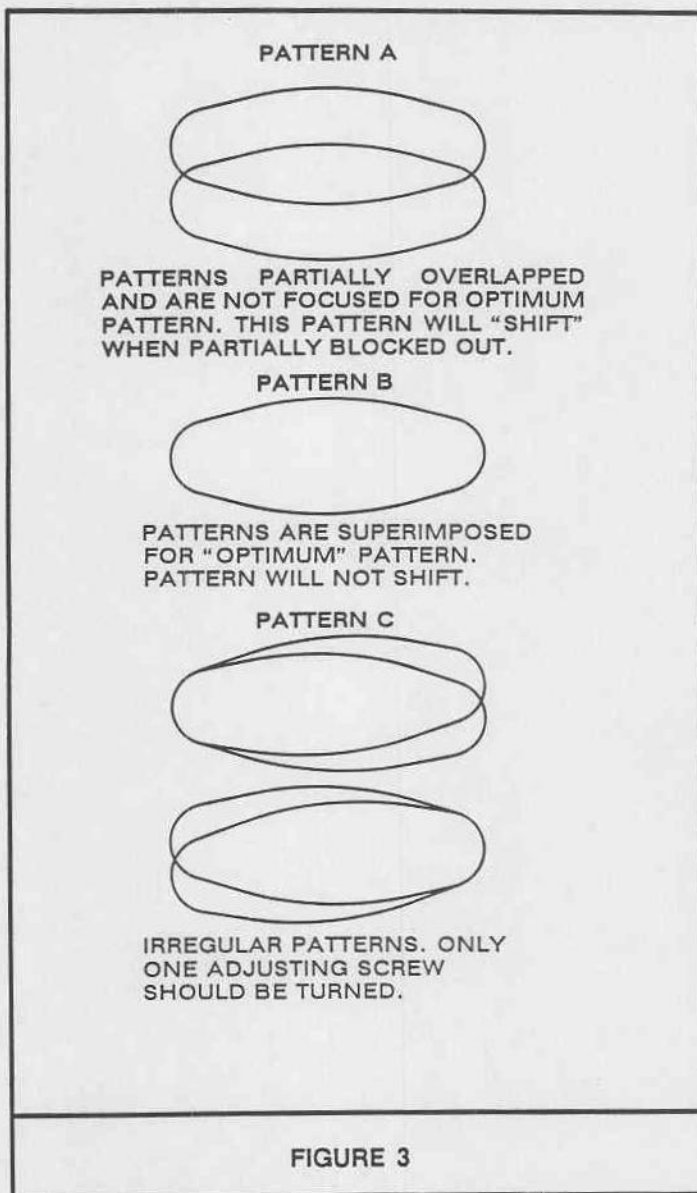
**NOTE:** The lamp focus is factory set for an optimum pattern 27" (68.6 cm) from the oral cavity. This results in an excellent pattern in an 18" (45.7 cm) to 36" (91.4 cm) range from the oral cavity. The lamp may also be refocused for an optimum pattern at other operating distances.

- 2.01 Turn two screws on front of light **clockwise** until both screws are tight. The patterns will now be partially overlapped as shown in Pattern A.

- 2.02 Turn each screw **counterclockwise** equally one turn at a time until the patterns are superimposed as shown in Pattern B.

- 2.03 Inspect for optimum pattern by blocking out one half of the light. If the pattern appears to shift, further adjustment is required. Otherwise, focusing of the lamp is completed.

- 2.04 If patterns are irregular as shown in Pattern C, turn **only one screw** until the patterns are superimposed.



**WARNING:** Do not operate light unless plastic shields are in place. Shields provide protection in case of lamp explosion.

**PELTON & CRANE**

P.O. BOX 7800 • CHARLOTTE, NC 28241-7800 U.S.A. • 1-704-523-3212

A Siemens Company



# LIGHT FANTASTIC® II MILITARY FIELD LIGHT UNIT SPECIFICATIONS

## 1.00 GENERAL

- 1.01 The Light Fantastic II shall be mounted on a post or unit and shall operate from standard 120 or 240 VAC, 50/60 Hz power supply. It shall have a curved glass reflector which shall incorporate pattern color correction and heat reduction. The source of light rays shall be from a single, tubular bulb positioned in the middle of the reflector and shielded from view in front. The reflected beam shall be concentrated into a horizontal pattern in range from 18" (45.7 cm) to 36" (91.4 cm).
- 1.02 The UL listed lighting unit shall provide a beam of light of shadow-reducing, color-corrected, heat-reduced quality, which will illuminate the oral cavity in a manner suitable for dental surgery. The pattern shall have a vertical height of 3" (7.6 cm) and a width of 8" (20.3 cm) with a range from 18" (45.7 cm) to 36" (91.4 cm) with optimum pattern at 27" (68.6 cm). The intensity shall be controlled with a three-position dimmer switch. With a line voltage of 120 or 240 VAC, the dimmer switch shall adjust the intensity from a minimum of 1500 footcandles at 27" (68.6 cm) to a maximum of 2500 footcandles at 27" (68.6 cm). The correlated color temperature shall be between 3800° K (Kelvin) and 4300° K.

## 2.00 CONSTRUCTION

- 2.01 **Light Head**— Shall be a die cast aluminum frame finished with baked-on epoxy powder and shall consist of glass reflector, lamp focus bracket assembly and handles.
- 2.02 **Light Source**— Shall be a tubular, bromine-cycle, quartz-halogen lamp rated at 150 watts, 25 volts (used at 23 volts). The rated life at the operating voltage shall be 8,000 hours. Due to self-cleaning properties, bulb shall maintain its lumen output throughout its life.
- 2.03 **Lampholders**— Shall be General Electric® number AL1-8817-402 ceramic sockets. They shall be specifically designed for use with quartz halogen lamps.
- 2.04 **Reflector**— Shall be borasilicate glass with shape designed to make efficient use of the cylindrically-shaped filament and shall have a continuous varying contour which, in effect, shall be equal to an infinite number of flutes. The reflector shall reflect the image of the entire filament from no less than 200° of the reflector vertical curvature. The reflector shall allow infrared (heat) energy to pass through, thus reducing temperature at the patient. This coating shall also correct the color of reflected light to between 3800° K and 4300° K. The back surface coating shall be a ceramic material (Frit) which shall be fused into the glass. This coating shall diffuse light emitting from the back of the reflector.
- 2.05 **Nameplate**— Shall be pressure-sensitive aluminum and shall bear company name, voltages, current, serial number, model number and other applicable data.
- 2.06 **Front Arm**— Shall enclose the mechanical spring which counterbalances the weight of light head and permits drift-free movement. Shall permit approximately 24" (61 cm) vertical travel of head and extend light head approximately 24" (61 cm).
- 2.07 **Electrical Connections**— A UL listed three-wire ground line cord and a 120 VAC green dot hospital grade male plug or a plug suitable for use in a hospital environment shall be furnished. A 12' extension cord and instructions for 240 VAC conversion shall also be provided.
- 2.08 **Transformer**— Step-down transformer shall provide proper voltages to operate quartz halogen type lamp and shall be constructed for long life. Transformer shall isolate entire system from normal line. The transformer shall be enclosed in the base of the rear arm.
- 2.09 **Yoke**— Shall contain switch and concealed wiring to lamp and shall be capable of 240° horizontal movement. Vertical rotation shall be approximately 110° above horizontal to 170° below horizontal in the other direction.
- 2.10 **Rear Arm**— Movement at base shall be full 360° rotation. Arm shall be 19" (48.3 cm) in length and enclose wire from light to transformer.
- 2.11 **Intensity Switch**— Three-position switch shall be controlled by knob and shall select desired tap of transformer to supply adjustable voltage, thus varying light intensity.

**PELTON & CRANE**

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YL8-097805  
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